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energy application survey 1976



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FOREWORD

This report contains the results of Hydro's ninth energy application survey. Inside are detailed analyses of appliance ownership in Ontario homes based on a sample survey conducted during October and November, 1976.

The efforts of many have combined to produce this report. A great number of Hydro personnel across the province as well as in Head Office provided their time and assistance to work on all phases. Particular thanks are due to the participating Municipal Utilities for their cooperation in carrying out the sample selection for the municipal portion of the survey.

The data collected should provide valuable insight into the probable future pattern of energy use. Knowledge of historical trends is vital, particularly in the case of major energy-using appliances, both for reasons of projecting future energy requirements and of viewing realistically the prospects for energy conservation.

July, 1977

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GENERAL

SECTION I

SAMPLE OF THE 1976 SURVEY FORM

Dear Customer:

The information requested on the questionnaire will help us plan for your future electricity requirements. You can assist us by answering a few questions.

Upon completion simply detach and mail the questionnaire portion - no stamp or signature is required.

Please do it now while you are thinking about it!

Thank you for your cooperation.

your hydro

energy application survey



please mark X to those appliances
you own or use in your home

▼ please detach here ▼

- 26 your kitchen stove**
- 1 electric continuous clean (catalytic)
 - 2 electric self-cleaning (pyrolytic)
 - 3 other electric
 - 4 microwave oven
 - 5 gas stove or range
 - 6 other _____
 - 7 without cooking stove or range

27 your refrigerator & freezer

- deep freezer
- is it frost free?** 2 yes no
- 3 2 door combination refrigerator-freezer

- is it frost free?** 4 yes no
- 5 other electric refrigerator

- is it frost free?** 6 yes no
- 7 gas refrigerator
- 8 without elec. or gas refrig.

- 78 how often was your hydro service interrupted in the past year?**
- 1 never 2 1-4 times 3 5 or more times

28 other electric appliances

- | A | <input type="checkbox"/> automatic dishwasher | number
<i>In use</i> |
|---|---|-------------------------|
| B | <input type="checkbox"/> window air conditioners | _____ |
| C | <input type="checkbox"/> plug-in dehumidifiers | _____ |
| D | <input type="checkbox"/> plug-in humidifiers | _____ |
| E | <input type="checkbox"/> electric blankets | _____ |
| F | <input type="checkbox"/> electric kettles | _____ |
| G | <input type="checkbox"/> hi-fi or stereo record/tape players | _____ |
| H | <input type="checkbox"/> black & white T.V.s | _____ |
| I | <input type="checkbox"/> color T.V.s | _____ |
| J | <input type="checkbox"/> swimming pool filter | _____ |
| K | <input type="checkbox"/> electric saunas | _____ |
| L | <input type="checkbox"/> your home laundry | _____ |
| M | <input type="checkbox"/> automatic washer | _____ |
| N | <input type="checkbox"/> other washer (wringer, spin dry, etc.) | _____ |
| O | <input type="checkbox"/> washer-dryer (lone unit) | _____ |
| P | <input type="checkbox"/> electric dryer | _____ |
| Q | <input type="checkbox"/> gas dryer | _____ |

33001 rev. 8-76

29 home heating (main source)

- 1 oil space heater
- 2 oil furnace
- 3 gas furnace
- 4 electric heating (any type)
- 5 other 6 don't know

30 in addition do you use

- 1 central air conditioning
- 2 electronic air cleaner
- 3 power humidifier on furnace
- 4 circulating pump or fan on furnace
- 5 plug-in elec. space heater
- 6 built-in elec. space heater

31 hot water heater

- 1 electric 2 gas
- 2 oil 4 other or none
- 3 don't know

32 if swimming pool heater

- is it?* 1 electric 2 oil or gas

33 your home do you have piped running water?

- 1 municipal or your own pressure system
2 none

- 34 do you own 4 rent your home**

- 1 single family house
2 apartment or flat
3 other _____

describe _____

35 was it built? 4 before 1956

- 5 1956-60 6 1961-65
7 1966-70 8 after 1970

36 total no. of rooms do not include baths or any unfinished rooms. _____

37 number of people _____

79 do you know if any of these interruptions were planned

- 1 yes 2 no 3 don't know

80 if planned, did you find out about it in advance by

- 1 newspaper 2 radio/t.v. 3 other

HIGHLIGHTS OF THE 1976 ENERGY APPLICATION SURVEY

- There continues to be a significant increase in the demand for appliances that contribute to the amenities of life. Ownership of dishwashers, colour televisions, dryers, dehumidifiers, window air-conditioners and freezers has increased, again led by colour television (from 54.9 per cent to 66.2 per cent saturation since 1974 - Tables M5, M6) and dishwashers (from 15.5 per cent to 20.2 per cent saturation since 1974 - Tables M5, M6). The increase is sometimes the result of up-grading, e.g., an increase in automatic washers and colour televisions at the expense of conventional wringer washers and black and white televisions. The decrease is still less than the corresponding increase, however, indicating an overall growth.
- In the case of automatic washers, freezers, and dishwashers, a larger increase in saturation is evident for Ontario Hydro retail customers than for municipal customers. The reverse is true in the case of dryers, which show a slight increase for customers of the retail system and a slightly larger increase for municipal customers. Changes in the questionnaire design regarding freezers and refrigerators may have influenced the results.
- The use of gas for home heating and water heating (Table M9) still represents about one-third of the residential market.
- There continues to be a decline in the use of oil for home heating (from 47.3 per cent in 1974 to 42.6 per cent in 1976, Table M9).
- Central air-conditioning has a higher saturation in the more southerly regions. There is a significant increase in the overall saturation from 4.7 per cent in 1974 to 6.7 per cent in 1976 and an increase in saturation of window air-conditioners from 16.7 per cent in 1974 to 19.0 per cent in 1976 (Table M5).
- As might be expected, there is a direct relationship between the consumption of electricity and the saturation of most electric appliances (Tables M7, M8). Three

exceptions (conventional refrigerator, conventional washer, and black and white television) can be rationalized in terms of up-grading appliances with increased energy use.

- Cross-tabulations point up some inter-relationships as to appliance ownership and type of fuel used, and as to type of home ownership and age of home.

1. If electricity is used for home heating, there is little likelihood that gas will be used for the range, clothes dryer, or water heater, whereas the use of gas for home heating does not preclude the use of electricity as a fuel for these appliances. It does, however, have some influence toward the use of gas for the range and clothes dryer (approximately one-quarter of the total saturation), and a much greater influence in the case of the water heater (approximately three-quarters of the total).

The use of oil for home heating has a slight tendency to reduce electric appliance saturations as compared with all-electric homes. When oil is used for home heating, there is a low saturation of gas used for the range, clothes dryer, and water heater (Tables M21, M22).

2. For those households that use gas or oil for water heating, there is a strong probability of the same respective use of fuel for home heating (Tables M23, M24).
3. Generally speaking, householders living in their own homes have more modern appliances than tenants. The difference is more significant in urban areas than rural areas (Tables M27, M28).
4. Trends in fuel use are related to age of the home. Newer homes generally use gas for home heating and water heating rather than oil for home heating and electricity for water heating. These trends are particularly apparent for municipal customers (Tables M29, M30).

SURVEY METHOD

The results of this survey are based on 83,210 processable responses to 122,553 questionnaires that were mailed to residential and farm customers selected at random from the latest billing records. The response rate of 67.9 per cent is considered to be adequate to ensure the reliability of all estimates published in this study.

The information was transferred from returned questionnaires onto magnetic tape for computer processing, utilizing the preprinted coding on the survey form. Our Computing Services Division was responsible for preparing the necessary programs for editing the questionnaires by the computer. The computer then automatically rejected wrong answers and duplicate questionnaires resulting from our follow-up. Finally, all tabulations, graphs, and analyses were produced via the computer.

A measurement of the non-response bias was made by comparing the results from successive batches of returns. A negligible difference was found between the answers of earlier and later respondents; suggesting that if non-respondents eventually replied to the survey, they would not have significantly different levels of appliance ownership from those who did respond.

Like the 1974 survey, a sample of households drawn from multiple dwelling units served in bulk by many municipalities was included. Since many large blocks of households are served through a single meter, this sampling is required to maintain consistency with past survey results and comparability with saturation results published by other sources such as Statistics Canada. All tables and the accompanying saturation graphs reflect the responses of bulk-metered apartments.

No corrections have been made for non-participating municipalities as indicated by our percentage coverage in the Sample and Response Table (page 9). Household estimates used on tables with 'M' prefix are based on September 1976 estimates, and correspond to the survey coverage, while Sample Characteristics Tables are based on actual year-end 1976 data.

An attempt was made to clarify the questions regarding refrigerators and freezers. Thus caution must be taken in analysing the figures for two-door refrigerator-freezers (and consequently electric refrigerators, all types). Some respondents may have indicated freezer instead of two-door refrigerator-freezer due to the questionnaire redesign. Alternatively, these data for 1974 might have been overstated. The actual saturation for freezers, refrigerators and refrigerator-freezers will become evident in the ensuing surveys.

Other changes were made to the 1974 questionnaire to gather data for an electric power system reliability study.

SAMPLE AND RESPONSE

Class of Customer	Municipal *						Total * Province
	Singly-Metered Households	Bulk-Metered Apartments	Local Systems	Rural Non-Farm	Rural Farm		
Total Residential Households as at Dec. 31, 1976	1,757,590	389,414	24,442	401,995	120,911	2,694,352	
Number of Questionnaires Mailed	54,355	14,864	3,183	36,194	13,957	122,553	
Questionnaires Mailed as a Percentage of Total Households	3.1%	3.8%	13.0%	9.0%	11.5%	4.6%	
Number of Questionnaires Returned	37,914	5,757	2,261	27,219	10,059	83,210	
Returns as a Percentage of Questionnaires Mailed	69.8%	38.8%	70.7%	75.2%	72.1%	67.9%	
Returns as a Percentage of Total Households	2.2%	1.5%	9.2%	6.8%	8.3%	3.1%	

* Including Participating Non-Hydro Municipalities

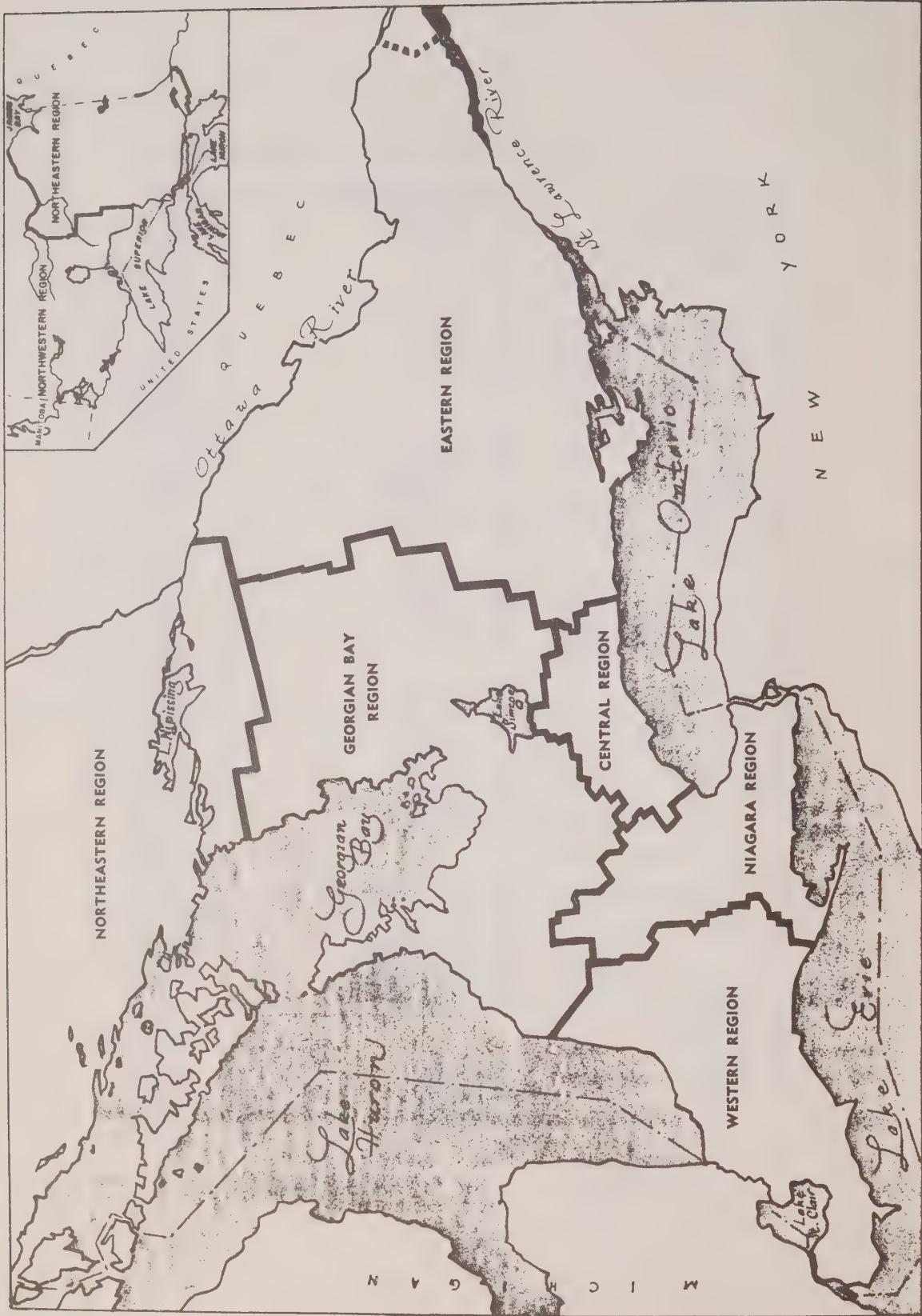
LIST OF PARTICIPATING RURAL OPERATING AREAS

NE	ALGOMA	W	LAMBTON
GB	ALLISTON	N	LISTOWEL
E	ARNPRIOR	NE	MANITOULIN
E	BANCROFT	C	MARKHAM
GB	BARRIE	NE	MATHESON
W	BEACHVILLE	GB	MINDEN
N	BEAMSVILLE	NE	NEW LISKEARD
C	BOWMANVILLE	C	NEWMARKET
GB	BRACEBRIDGE	NE	NORTH BAY
C	BRAMPTON	GB	ORANGEVILLE
N	BRANTFORD	GB	ORILLIA
E	BROCKVILLE	GB	OWEN SOUND
N	CAYUGA	GB	PARRY SOUND
W	CLINTON	GB	PENETANGUISHENE
E	COBDEN	E	PERTH
E	COBOURG	E	PETERBOROUGH
NW	DRYDEN	E	PICTON
N	DUNDAS	N	SIMCOE
W	EAST ELGIN	GB	STAYNER
W	ESSEX	N	STONEY CREEK
GB	FENELON FALLS	W	STRATHROY
NW	FORT FRANCES	NE	SUDBURY
E	FRANKFORD	NW	THUNDER BAY
NW	GERALDTON	NE	TIMMINS
N	GUELPH	E	TWEED
GB	HUNTSVILLE	E	VANKLEEK HILL
NE	KAPUSKASING	GB	WALKERTON
NW	KENORA	NE	WARREN
W	KENT	N	WELLAND
E	KINGSTON	E	WINCHESTER
NE	KIRKLAND LAKE		

LIST OF PARTICIPATING MUNICIPALITIES AND LOCAL SYSTEMS

W	ALVINSTON	NW	GERALDTON L.S.	N	PARIS
W	AMHERSTBURG	E	GOLOUCESTER TWP	E	PEMBROKE
E	ARNPRIOR	W	GODERICH	GB	PENETANGUISHENE
NW	ATIKOKAN TWP	N	GRIMSBY	E	PERTH
C	AURORA	N	GUELPH	E	PETERBOROUGH
W	AYLMER			W	PETROLIA
		NE	HAILEYBURY L.S.	E	PICTON
GB	BARRIE	N	HAMILTON	N	PORT COLBORNE
E	BARRY'S BAY	GB	HUNTSVILLE	C	PORT CREDIT
N	BEAMSVILLE			N	PORT DOVER
NW	BEARDMORE L.S.			GB	PORT ELGIN
W	BELLE RIVER	W	INGERSOLL	E	PORT HOPE
E	BELLEVILLE			C	PORT PERRY
NE	BLIND RIVER L.S.	NE	KAPUSKASING	W	PORT STANLEY
C	BOLTON	NW	KENORA	NE	POWASSAN L.S.
W	BOTHWELL	E	KILLALOE STATION	E	PRESCOTT
C	BOWMANVILLE	GB	KINCARDINE		RENFREW
E	BRAESIDE	E	KINGSTON	W	RIDGETOWN
C	BRAMPTON	W	KINGSVILLE	W	RODNEY
N	BRANTFORD				ST CATHARINES
N	BRANTFORD TWP	W	LAMBETH	W	ST MARY'S
E	BROCKVILLE	W	LEAMINGTON	W	ST THOMAS
N	CALEDONIA	GB	LINDSAY	W	SANDWICH WEST TWP
E	CAMPBELLFORD	W	LONDON	NE	SAUTL STE MARIE N.H.
NE	CAPREOL	N	LYNDEN	C	SCARBOROUGH
E	CHALK RIVER			NE	SCHUMACHER L.S.
W	CHATTHAM	NE	MATTAWA L.S.	GB	SOUTHAMPTON
N	CHIPPEWA	GB	MEAFORD	NE	SOUTH PORCUPINE L.S.
W	CLINTON	E	MILLBROOK	C	STOUFFVILLE
NE	COBALT L.S.	W	MITCHELL	W	STRATFORD
E	COBDEN	GB	MIDLAND	W	STRATHROY
E	COBOURG	C	MILTON	C	STREETSVILLE
NE	COCHRANE	C	MISSISSAUGA	NE	STURGEON FALLS
E	COLBORNE	W	MOUNT BRYDGES	NE	SUDBURY
E	CORNWALL N.H.	GB	MOUNT FOREST		
				W	TECUMSEH
E	DEEP RIVER			N	THOROLD
N	DELHI	E	NAPANEE	NW	THUNDER BAY
W	DORCHESTER	E	NEPEAN TWP	W	TILBURY
N	DUNDAS	NE	NEW LISKEARD L.S.	W	TILLSONBURG
N	DUNNVILLE	C	NEWCASTLE	NE	TIMMINS L.S.
		N	NEW HAMBURG	C	TORONTO
		N	NIAGARA FALLS	NE	TWP OF TECK L.S.
C	EAST YORK	N	NIAGARA-ON-THE-LAKE	E	TRENTON
E	EGANVILLE	NE	NORTH BAY	C	UXBRIDGE
N	ELMIRA	C	NORTH YORK		
NE	ENGLEHART L.S.			W	WALLACEBURG
NE	ESPAÑOLA	C	OAKVILLE	N	WATERLOO
W	ESSEX	E	OMEMEE	N	WELLAND
C	ETOBICOKE	GB	ORILLIA	C	WHITBY
W	EXETER	C	OSHAWA	W	WINDSOR
		E	OTTAWA	GB	WINGHAM
N	FERGUS	GB	OWEN SOUND	W	WOODSTOCK
NW	FORT FRANCES N.H.			C	YORK

ONTARIO HYDRO REGIONS



PROVINCIAL SATURATION STATISTICS OF SELECTED APPLIANCES

SECTION II

PROVINCIAL APPLIANCE SATURATION STATISTICS OF SELECTED APPLIANCES BY REGION*

197

Region:	<u>Western</u>	<u>Niagara</u>	<u>Central</u>	<u>Georgian Bay</u>	<u>Eastern</u>	<u>North-Eastern</u>	<u>North-Western</u>	<u>Provincial Total</u>
Total Number of Residential & Farm Households (Estimated)	336,519	385,174	939,265	133,632	352,863	146,146	61,332	2,354,9
<u>Electrical Appliances</u>	%	%	%	%	%	%	%	%
Electric Range, Any Type	78.8	83.7	90.3	91.4	93.0	91.8	92.1	88.1
Microwave Oven	1.8	1.7	2.0	2.3	1.6	1.5	1.8	1.9
Plug-In Kettle	61.6	62.0	61.1	70.2	69.6	69.1	65.7	63.8
Home Food Freezer	56.8	52.6	40.2	69.9	59.1	61.7	62.7	51.0
Electric Refrigerator, Any Type	98.3	98.4	98.6	99.2	99.3	98.9	99.4	98.7
2-Door Refrigerator-Freezer	46.5	46.3	44.3	41.3	44.3	41.7	42.5	44.6
Conventional Refrigerator	60.0	60.9	60.4	62.1	61.3	62.6	62.3	61.3
Automatic Dishwasher	21.2	16.1	20.0	20.5	24.4	16.9	17.6	20.0
Automatic Washer	53.9	45.6	42.8	42.8	49.3	49.3	53.6	46.5
Conventional Washer	28.0	30.5	24.0	41.2	30.4	33.8	31.4	28.4
Combination Washer-Dryer	1.8	1.8	1.9	2.3	2.8	2.0	1.5	2.0
Clothes Dryer	49.9	42.2	37.2	57.6	56.0	55.0	57.1	45.4
Water Heater	45.0	43.6	46.2	83.0	87.4	74.0	63.1	56.0
Central Air-Conditioning	8.7	5.5	9.2	1.9	4.8	1.0	1.1	6.7
Window Air-Conditioner - 1	23.4	18.9	17.7	8.0	10.8	4.0	3.3	15.9
Window Air-Conditioner - 2 or more	5.6	3.5	3.5	.8	1.5	.4	.1	3.1
Dehumidifier	24.1	24.9	19.6	15.5	21.2	11.8	6.2	23.3
Bed Blanket	21.7	17.9	15.5	22.1	19.8	11.8	12.9	17.5
Electric Home Heating	10.2	7.3	8.2	22.3	10.7	15.3	11.5	10.0
Plug-In Space Heater	12.0	10.4	10.4	11.6	12.0	9.5	11.1	10.9
Built-In Space Heater	2.6	2.1	1.9	3.1	2.6	2.7	3.1	2.3
Plug-In Humidifier	19.4	17.5	23.8	23.8	19.5	13.6	10.3	20.5
Furnace Power Humidifier	17.7	17.8	18.5	10.8	16.1	10.6	9.1	16.7
Black & White Television	53.1	49.7	53.9	50.0	54.6	50.1	54.6	52.7
Colour Television	68.0	67.2	65.4	63.3	65.3	70.3	64.5	66.2
Record/Tape Player	70.5	70.5	72.4	68.0	71.2	69.0	69.0	71.1

* Including Participating Non-Hydro Municipalities and Bulk-Metered Apartments

PROVINCIAL APPLIANCE SATURATION STATISTICS BY LOCATION OF CUSTOMER

1976

Class of Service:	Rural Non-Farm			Local Systems	Municipal Total*	Provincial Total*
	Rural Farm	Normal Density	High Density			
Total Number of Residential & Farm Households (Estimated):	122,554	176,515	203,354	502,423	24,139	1,828,369
<u>Electrical Appliances</u>	%	%	%	%	%	%
Electric Range, Any Type	85.1	85.3	88.2	86.4	88.5	88.6
Microwave Oven	1.8	2.3	2.3	2.2	.8	1.8
Plug-In Kettle	63.5	64.6	68.0	65.7	70.5	63.1
Come Food Freezer	86.2	76.2	68.4	75.5	55.8	44.3
Electric Refrigerator, Any Type	98.9	99.2	99.2	99.1	98.6	98.6
2-Door Refrigerator-Freezer	38.5	41.8	48.0	43.5	43.2	44.9
Conventional Refrigerator	67.2	65.3	59.4	63.4	61.0	61.1
Automatic Dishwasher	22.6	19.1	24.0	21.9	14.1	19.5
Automatic Washer	44.2	44.6	57.5	49.7	47.5	45.6
Conventional Washer	47.9	44.3	32.2	40.3	36.1	25.0
Combination Washer-Dryer	2.0	2.4	2.2	2.2	2.4	2.0
Clothes Dryer	61.3	60.3	64.8	62.4	49.4	40.7
Water Heater	88.9	86.0	73.7	81.7	55.5	50.8
Central Air-Conditioning	1.9	3.3	5.7	3.9	.9	7.6
Window Air-Conditioner - 1	7.3	8.4	11.2	9.3	6.4	17.8
Window Air-Conditioner - 2 or more	1.6	1.1	2.0	1.6	.4	3.5
Dehumidifier	10.3	18.6	24.0	18.8	6.4	20.9
Bed Blanket	25.3	18.9	18.2	20.1	11.3	16.9
Electric Home Heating	5.2	20.0	18.4	15.7	10.5	8.5
Plug-In Space Heater	18.0	11.4	10.7	12.7	8.7	10.5
Built-In Space Heater	3.9	2.8	2.7	3.1	2.7	2.1
Plug-In Humidifier	18.8	17.8	18.8	18.4	15.4	21.2
Furnace Power Humidifier	12.9	12.4	17.9	14.7	10.4	17.4
Black & White Television	55.6	54.3	51.3	53.4	49.4	52.5
Colour Television	56.1	60.7	71.3	63.9	65.8	66.9
Record/Tape Player	63.3	69.1	75.6	70.3	61.3	71.4

* Including Participating Non-Hydro Municipalities and Bulk-Metered Apartments

**SATURATION STATISTICS OF MUNICIPAL RESPONDENTS
BY ANNUAL kWh-USE BLOCKS, 1976**

Annual Energy in kWh:	500- 2499.9	2500- 4499.9	4500- 6499.9	6500- 8499.9	8500- 10499.9	10500- 12499.9	12500- 14499.9	14500 & Over
Sample Size	1133	1981	2858	2664	2505	1719	1178	2712
Electrical Appliances	%	%	%	%	%	%	%	%
Range, Pyrolytic Cleaning	6.7	5.1	7.2	7.5	8.1	9.0	12.6	14.1
Range, Other	67.4	70.9	74.2	78.0	81.8	83.3	81.2	83.0
Home Food Freezer	34.9	37.4	51.4	58.0	61.7	67.0	67.5	68.6
2-Door Refrigerator-Freezer	12.0	11.9	9.5	9.6	10.5	10.5	9.4	9.0
2-Door Refrigerator-Freezer Frostfree	26.0	31.3	33.6	37.7	39.2	37.9	42.7	44.0
Conventional Refrigerator	59.9	55.2	54.7	51.2	49.1	50.2	46.4	45.9
Automatic Dishwasher	15.4	11.2	15.6	16.2	21.8	25.5	32.5	39.8
Automatic Washer	33.3	39.2	47.9	51.7	58.5	63.7	69.1	72.6
Conventional Washer	31.0	37.2	34.1	33.5	28.7	24.2	20.3	17.8
Combination Washer-Dryer	1.7	2.2	2.2	2.6	2.0	1.7	1.6	1.7
Clothes Dryer	28.7	34.3	43.2	51.5	58.2	63.6	70.0	75.4
Water Heater	33.1	47.4	56.2	60.6	69.9	78.4	83.3	90.8
Swimming-Pool Filter	3.4	1.8	3.3	3.2	4.5	5.6	7.3	9.4
Supplementary Space Heater	12.5	11.7	11.3	12.8	16.5	17.7	17.8	19.8
Central Air-Conditioning	9.1	3.3	5.7	5.1	5.7	7.2	8.4	8.9
Window Air-Conditioner	18.3	19.8	17.2	17.6	17.5	17.9	16.2	17.6
Dehumidifier	11.6	15.8	17.7	20.1	26.1	26.8	31.3	30.2
Plug-In Humidifier	16.0	17.0	17.5	17.5	19.8	20.9	20.5	25.6
Furnace Power Humidifier	13.1	12.3	17.1	19.2	18.9	19.7	23.7	18.7
Bed Blanket	14.4	18.9	18.0	19.1	21.6	20.3	21.1	22.9
Black & White Television	55.5	54.0	52.5	52.3	52.1	53.8	53.7	52.7
Colour Television	56.1	58.9	64.0	68.5	71.4	71.5	72.5	77.3
Record/Tape Player	55.5	59.2	65.4	69.1	73.2	76.0	77.8	79.5

**SATURATION STATISTICS OF RURAL NON-FARM RESPONDENTS
BY ANNUAL kWh-USE BLOCKS, 1976**

Annual Energy in kWh:	500- 2499.9	2500- 4499.9	4500- 6499.9	6500- 8499.9	8500- 10499.9	10500- 12499.9	12500- 14499.9	14500 & Over
Sample Size	815	1912	3211	4069	3995	3215	2202	7528
<u>Electrical Appliances</u>	%	%	%	%	%	%	%	%
Range, Pyrolytic Cleaning	3.4	3.6	5.0	6.4	6.6	8.0	8.1	12.3
Range, Other	60.7	65.1	72.7	77.1	82.1	82.6	83.2	83.5
Home Food Freezer	44.5	54.9	65.1	72.5	76.6	79.4	79.1	77.6
2-Door Refrigerator-Freezer	9.8	8.8	10.2	9.1	8.6	9.5	9.1	8.4
2-Door Refrigerator-Freezer Frostfree	17.9	23.9	28.0	32.8	33.7	36.6	37.5	41.0
Conventional Refrigerator	69.7	65.0	59.7	56.2	55.8	52.4	51.9	49.3
Automatic Dishwasher	6.5	7.2	10.5	12.9	15.4	21.5	26.7	31.8
Automatic Washer	19.5	24.1	32.4	39.6	45.7	53.6	58.7	64.4
Conventional Washer	48.8	54.1	51.9	48.7	45.2	39.0	34.1	28.0
Combination Washer-Dryer	2.7	2.4	3.0	2.3	2.1	2.5	2.3	2.2
Clothes Dryer	25.6	30.5	43.0	53.8	64.0	72.0	73.9	76.2
Water Heater	49.7	56.6	66.2	75.4	83.5	89.2	92.1	96.4
Swimming-Pool Filter	1.7	2.3	2.3	3.3	4.5	6.6	7.6	9.2
Supplementary Space Heater	14.9	12.5	11.8	12.9	13.7	14.7	15.4	15.0
Central Air-Conditioning	1.0	1.5	1.8	2.6	2.7	3.7	5.2	5.6
Window Air-Conditioner	4.4	6.8	10.3	10.0	10.3	11.2	10.1	12.2
Dehumidifier	5.8	8.7	12.2	16.1	19.1	22.6	23.2	27.5
Plug-In Humidifier	8.0	11.2	14.5	16.0	17.8	18.1	19.9	24.4
Furnace Power Humidifier	5.0	8.0	11.9	13.6	15.5	17.4	18.6	11.3
Bed Blanket	16.9	17.6	17.8	17.3	18.1	18.3	19.6	21.0
Black & White Television	62.7	56.4	51.5	51.1	51.1	51.1	54.0	51.1
Colour Television	38.7	48.4	58.6	62.2	65.8	68.8	69.3	72.4
Record/Tape Player	46.3	61.5	60.0	68.4	72.8	76.8	77.3	78.4

**SATURATION STATISTICS OF SELECTED APPLIANCES
USING OTHER FORMS OF ENERGY
BY CLASS OF SERVICE**

1976

Class of Service:	Rural Farm	Rural Non-Farm	Local Systems	Municipal*	Provincial Total *
Total Number of Residential & Farm Households (Estimated)	122,554	379,869	24,139	1,828,369	2,354,931
Customers Using	%	%	%	%	%
Gas Range or Rangette	13.9	12.5	11.0	12.8	12.8
Gas Clothes Dryer	4.0	5.2	2.9	5.5	5.3
Gas Water Heating	7.7	16.4	37.6	30.4	27.1
Gas Home Heating	11.1	20.5	58.7	36.8	33.1
Oil Water Heating	.9	2.1	1.0	1.7	1.7
Oil Home Heating	75.7	57.3	23.7	37.5	42.6
Other Fuel for Water Heating	2.9	2.1	1.1	.8	1.1
Other Fuel for Home Heating	7.8	2.7	2.7	2.0	2.4
Do Not Know Fuel For Water Heating	.2	.5	4.4	16.8	13.2
Do Not Know Fuel For Home Heating	.2	.4	4.3	15.2	11.9

* Including Participating Non-Hydro Municipalities and Bulk-Metered Apartments

REGIONAL SATURATION STATISTICS OF SELECTED APPLIANCES

SECTION III

SAMPLE CHARACTERISTICS - MUNICIPAL HOUSEHOLDS *

	<u>Western</u>	<u>Niagara</u>	<u>Central</u>	<u>Georgian Bay</u>	<u>Eastern</u>	<u>North-Eastern</u>	<u>North-Western</u>	<u>Provincial</u>	<u>Total</u>
Total Number of Households (As at Dec. 31, 1976)	275,484	419,220	910,832	93,772	307,949	89,428	50,219	2,146,904	
Number of Participating Utilities	34	24	21	13	28	8	5		133
Number of Households Served by These Utilities (Estimated, As at Dec. 31, 1976)	249,795	307,230	874,308	47,949	229,548	75,102	44,437	1,828,369	
Per Cent Coverage	90.7%	73.3%	96.0%	51.1%	74.5%	84.0%	88.5%		85.2%
Sample Size	13,689	11,484	24,339	3,943	10,100	3,589	2,075		69,219
Net Processable Returns:									
Total	9,192	6,973	14,176	2,799	6,963	2,208	1,370		43,681
As a Percentage of Total Households	3.3%	1.7%	1.6%	3.0%	2.3%	2.5%	2.7%		2.0%
As a Percentage of Sample	67.2%	60.7%	58.2%	71.0%	68.9%	61.5%	66.0%		63.1%

* Including Participating Non-Hydro Municipalities and Bulk-Metered Apartments

Region	Western	Niagara	Central	Georgian Bay	Eastern	North-Eastern	North-Western	Provincial Total
Total Number of Residential Households of Participating Municipalities (Estimated)								
	249,795	307,230	874,308	47,949	229,548	75,102	44,437	1,828,369
Electrical Appliances								
	%	%	%	%	%	%	%	%
Electric Range, Any Type	78.3	84.2	90.1	92.3	95.4	94.5	96.0	88.6
Microwave Oven	1.7	1.5	1.9	1.8	1.6	1.9	2.1	1.8
Plug-In Kettle	61.6	62.2	60.7	73.9	70.6	67.3	68.6	63.1
Home Food Freezer	49.6	45.9	38.0	60.5	49.5	57.3	59.4	44.3
Electric Refrigerator, Any Type	98.1	98.3	98.5	99.0	99.3	98.7	99.6	98.6
2-Door Refrigerator-Freezer	46.7	46.6	43.7	43.6	36.0	42.7	43.9	44.9
Conventional Refrigerator	59.9	60.5	61.9	62.3	59.5	62.2	61.3	61.1
Automatic Dishwasher	20.4	14.7	19.1	21.5	26.0	19.8	19.1	19.5
Automatic Washer	53.2	44.4	41.3	46.4	50.5	52.3	58.3	45.6
Conventional Washer	25.6	27.7	23.6	31.5	23.8	27.0	26.6	25.0
Combination Washer-Dryer	1.8	1.8	1.9	2.1	2.7	1.9	1.3	2.0
Clothes Dryer	45.1	37.9	35.0	52.6	52.2	51.4	58.7	40.7
Water Heater	35.3	35.6	44.1	68.7	79.2	72.1	56.9	50.8
Central Air-Conditioning	9.8	5.7	9.2	1.8	6.0	1.3	1.2	7.6
Window Air-Conditioner - 1	26.3	20.6	18.2	10.3	12.6	4.0	3.3	17.8
Window Air-Conditioner - 2 or more	6.4	3.8	3.6	1.3	1.8	.5	.1	3.5
Dehumidifier	25.0	24.3	19.5	18.9	22.0	15.8	6.6	20.9
Bed Blanket	20.6	16.7	15.3	22.1	19.6	13.1	13.4	16.9
Electric Home Heating	9.5	7.3	7.6	17.3	8.0	15.0	10.0	8.5
Plug-In Space Heater	10.9	9.4	10.3	11.0	11.6	10.5	11.0	10.5
Built-in Space Heater	2.2	1.8	1.9	2.6	2.7	2.7	3.1	2.1
Plug-In Humidifier	19.1	17.7	24.0	25.4	20.2	14.8	10.0	21.2
Furnace Power Humidifier	18.8	17.3	17.8	12.6	17.8	12.9	10.8	17.4
Black & White Television	53.5	48.6	53.9	45.4	53.8	50.5	52.5	52.5
Colour Television	68.7	68.3	64.9	69.6	67.1	74.6	67.5	66.9
Record/Tape Player	71.3	70.0	71.9	69.6	72.3	72.3	69.1	71.4

* Including Participating Non-Hydro Municipalities and Bulk-Metered Apartments.

SAMPLE CHARACTERISTICS - LOCAL SYSTEM HOUSEHOLDS *

	<u>Northeastern</u>	<u>Northwestern</u>	<u>Provincial Total</u>
Total Number of Local System Residential Households (As at Dec. 31, 1976)	23,182	1,260	24,442
Number of Local Systems In the Survey	11	2	13
Number of Residential Households Served by These Local Systems	23,182	1,260	24,442
Per Cent Coverage	100%	100%	100%
Sample Size	2,799	384	3,183
Net Processable Returns:			
Total	2,003	248	2,251
As a Percentage of Total Local System Residential Households	8.6%	19.7%	9.2%
As a Percentage of Sample	71.6%	64.6%	70.7%

* Due to the amalgamation of Local Systems into the Rural, this will be the last set of statistics on this basis.

Region	<u>Northeastern</u>	<u>Northwestern</u>	<u>Provincial Total</u>
Total Number of Domestic Households (Estimated)	22,874	1,265	24,139
<u>Electrical Appliances</u>	%	%	%
Electric Range, Any Type	89.5	71.0	88.5
Microwave Oven	.8	1.1	.8
Plug-In Kettle	71.3	56.2	70.5
Home Food Freezer	55.7	58.7	55.8
Electric Refrigerator, Any Type	98.7	97.1	98.6
2-Door Refrigerator-Freezer	43.0	46.0	43.2
Conventional Refrigerator	61.4	54.2	61.0
Automatic Dishwasher	14.0	14.6	14.1
Automatic Washer	47.2	52.9	47.5
Conventional Washer	36.3	32.1	36.1
Combination Washer-Dryer	2.3	5.5	2.4
Clothes Dryer	49.4	48.6	49.4
Water Heater	56.0	45.2	55.5
Central Air-Conditioning	1.0	.2	.9
Window Air-Conditioner - 1	6.5	4.4	6.4
Window Air-Conditioner - 2 or more	.5	-	.4
Dehumidifier	6.5	4.8	6.4
Bed Blanket	11.4	9.1	11.3
Electric Home Heating	10.6	7.9	10.5
Plug-In Space Heater	8.7	8.5	8.7
Built-In Space Heater	2.8	1.9	2.7
Plug-In Humidifier	15.7	11.1	15.4
Furnace Power Humidifier	10.8	3.4	10.4
Black & White Television	49.4	49.1	49.4
Colour Television	66.0	62.5	65.8
Record/Tape Player	61.3	61.1	61.3

SAMPLE CHARACTERISTICS - RURAL NON-FARM HOUSEHOLDS

Region	Western	Niagara	Central	Georgian Bay	Eastern	Northeastern	Northwestern	Provincial Total
Total Number of Rural Non-Farm Residential Households (As At Dec. 31, 1976)	53,806	58,992	62,824	65,201	99,178	46,894	15,100	401,993
Number of Areas in Survey	7	9	4	13	13	10	5	6
Number of Rural Non-Farm Residential Households Served by These Areas	53,806	58,992	62,824	65,201	99,178	46,894	15,100	401,993
Per Cent Coverage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Net Sample Size	4,437	5,128	2,959	7,718	8,015	5,479	2,458	36,137
Net Processable Returns:								
Total	3,426	4,053	2,345	6,114	5,790	3,791	1,700	27,214
As a Percentage of Non-Farm Residential Households	8.3%	6.9%	3.7%	9.4%	5.8%	8.1%	11.3%	6.8%
As a Percentage of Sample	77.2%	79.0%	79.3%	79.2%	72.2%	69.2%	69.2%	75.2%

APPLIANCE SATURATION STATISTICS - RURAL NON-FARM CUSTOMERS

Region	Western	Niagara	Central	Georgian Bay	Eastern	North-Eastern	North-Western	Prov To
Total Number of Residential Households (Estimated)	51,106	55,938	58,365	62,614	92,722	44,888	14,236	379
<u>Electrical Appliances</u>	%	%	%	%	%	%	%	
Electric Range, Any Type	78.3	81.7	91.7	90.1	89.2	88.4	83.5	8
Microwave Oven	2.3	2.4	3.7	2.5	2.0	1.2	1.2	
Plug-In Kettle	61.4	61.8	66.9	68.8	69.1	71.2	58.9	6
Home Food Freezer	71.7	75.4	67.3	72.2	74.0	70.2	70.9	7
Electric Refrigerator, Any Type	99.0	98.9	99.0	99.4	99.4	99.3	98.9	9
2-Door Refrigerator-Freezer	48.6	46.3	53.0	42.0	43.3	40.0	39.0	4
Conventional Refrigerator	58.9	63.1	55.3	64.6	64.1	64.9	65.9	6
Automatic Dishwasher	23.0	20.5	32.0	18.7	22.5	13.7	14.0	2
Automatic Washer	58.1	52.3	64.2	41.2	50.6	45.9	42.0	5
Conventional Washer	31.0	39.0	28.0	45.1	39.2	42.2	42.7	3
Combination Washer-Dryer	2.1	1.8	1.8	2.5	3.0	2.1	1.7	
Clothes Dryer	62.5	59.5	67.4	59.0	65.4	63.4	54.0	6
Water Heater	64.8	71.4	71.4	89.8	87.1	85.2	82.3	7
Central Air-Conditioning	7.3	5.5	10.2	2.2	3.0	.6	1.0	
Window Air-Conditioner - 1	17.8	13.3	12.2	7.5	8.2	2.8	3.4	
Window Air-Conditioner - 2 or more	3.6	2.2	2.8	.6	.9	.2	-	
Humidifier	26.6	32.1	22.9	16.0	24.0	8.3	5.4	2
Blanket	23.2	20.7	17.2	20.8	19.2	9.5	11.6	1
Electric Home Heating	17.6	9.0	17.6	32.1	18.9	18.7	17.2	1
Plug-In Space Heater	11.6	12.5	12.0	10.6	11.0	7.9	11.2	1
Built-In Space Heater	3.2	2.9	2.6	3.2	2.3	2.5	3.1	
Plug-In Humidifier	20.3	16.7	20.2	22.5	18.9	10.8	10.9	1
Furnace Power Humidifier	15.6	20.8	28.4	9.4	13.6	6.6	4.6	1
Black & White Television	50.7	53.9	53.7	50.9	55.0	49.7	52.3	5
Colour Television	70.6	65.7	72.8	61.6	64.6	67.2	57.9	6
Record/Tape Player	71.5	73.9	80.6	69.3	71.8	68.7	70.2	7

SAMPLE CHARACTERISTICS - RURAL FARM HOUSEHOLDS

Region	<u>Western</u>	<u>Niagara</u>	<u>Central</u>	<u>Georgian Bay</u>	<u>Eastern</u>	<u>Northeastern</u>	<u>Northwestern</u>	<u>Provincial Total</u>
Total Number of Farm Households	35,462	21,471	6,501	22,834	30,177	3,147	1,319	120,911
Number of Areas Surveyed	7	9	4	13	13	10	5	61
Number of Farm Households Served by These Areas	35,462	21,471	6,501	22,834	30,177	3,147	1,319	120,911
Per Cent Coverage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Net Sample Size	1,990	2,420	948	2,922	3,308	1,769	600	14,611
Net Processable Returns:								
Total	1,500	1,822	683	2,179	2,282	1,152	441	10,447
As a Percentage of Total Farm Households	4.2%	8.5%	10.5%	9.5%	7.6%	36.6%	33.4%	8.3%
As a Percentage of Sample	75.4%	75.3%	72.0%	74.6%	69.0%	65.1%	73.5%	72.1%

APPLIANCE SATURATION STATISTICS - RURAL FARM CUSTOMERS

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ion:	Western	Niagara	Central	Georgian Bay	North-Eastern	North-Eastern	Western	Provincial Total
al Number of m Households (estimated)	35,618	22,006	6,592	23,069	30,593	3,282	1,394	122,554
<u>Electrical Appliances</u>	%	%	%	%	%	%	%	%
Electric Range, Any Type	81.5	81.1	92.6	90.8	85.9	89.1	79.0	85.1
rowave Oven	1.4	2.4	4.8	2.3	.9	1.8	.5	1.8
g-In Kettle	62.8	59.3	71.4	66.3	63.8	67.8	52.7	63.5
le Food Freezer	86.2	86.8	85.5	86.0	85.7	87.9	88.7	86.2
lectric Refrigerator, Any Type	98.7	98.4	99.0	99.3	99.0	98.6	99.1	98.9
Two-Door Refrigerator-Freezer	42.0	42.4	44.2	34.7	34.6	30.8	30.2	38.5
Conventional Refrigerator	64.3	64.8	63.7	70.2	70.1	71.1	72.2	67.2
omatic Dishwasher	24.0	23.5	33.6	23.0	19.1	14.0	8.0	22.6
omatic Washer	53.0	45.3	48.6	39.6	37.2	38.4	21.6	44.2
nventional Washer	40.8	48.1	41.6	50.7	53.4	56.5	69.4	47.9
Combination Washer-Dryer	1.4	1.6	2.5	2.2	2.6	2.7	1.3	2.0
thes Dryer	65.9	58.5	64.5	64.0	55.8	63.5	43.2	61.3
er Heater	85.0	83.8	97.9	94.2	91.4	88.8	82.5	88.9
entral Air-Conditioning	2.9	2.5	2.7	1.2	1.0	.2	.5	1.9
dow Air-Conditioner - 1	10.4	8.7	8.8	4.1	5.8	2.3	.8	7.3
dow Air-Conditioner - 2 or more	3.1	2.2	2.1	.3	.4	-	-	1.6
umidifier	13.8	13.9	12.7	7.2	6.2	5.3	2.6	10.3
Blanket	28.5	25.5	29.0	25.3	22.2	15.6	13.2	25.3
lectric Home Heating	4.7	3.2	5.6	6.0	6.1	8.2	4.5	5.2
g-In Space Heater	19.7	19.1	15.2	15.8	17.9	14.2	17.0	18.0
lt-In Space Heater	4.3	4.4	3.9	3.9	3.4	2.6	4.1	3.9
g-In Humidifier	20.1	17.1	19.9	23.1	16.5	9.6	11.1	18.8
ace Power Humidifier	13.4	16.8	16.1	10.6	11.3	9.1	4.5	12.9
ck & White Television	53.9	53.9	52.6	57.0	58.3	52.8	61.4	55.6
our Television	59.6	55.3	64.0	54.1	54.0	48.1	37.9	56.1
ord/Tape Player	63.8	68.1	68.7	61.3	60.8	55.7	51.6	63.3

<u>Class of Service</u>	<u>Rural Farm</u>	<u>Rural Non-Farm</u>	<u>Municipal</u>	<u>Regional Total</u>
Total Number of Residential & Farm Households (Estimated)	35,618	51,106	249,795	336,519
<u>Electrical Appliances</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
Electric Range, Any Type	81.5	78.3	78.3	78.8
Microwave Oven	1.4	2.3	1.7	1.8
Plug-In Kettle	62.8	61.4	61.6	61.6
Home Food Freezer	86.2	71.7	49.6	56.8
Electric Refrigerator, Any Type	98.7	99.0	98.1	98.3
2-Door Refrigerator-Freezer	42.0	48.6	46.7	46.5
Conventional Refrigerator	64.3	58.9	59.9	60.0
Automatic Dishwasher	24.0	23.0	20.4	21.2
Automatic Washer	53.0	58.1	53.2	53.9
Conventional Washer	40.8	31.0	25.6	28.0
Combination Washer-Dryer	1.4	2.1	1.8	1.8
Clothes Dryer	65.9	62.5	45.1	49.9
Water Heater	85.0	64.8	35.3	45.0
Central Air-Conditioning	2.9	7.3	9.8	8.7
Window Air-Conditioner - 1	10.4	17.8	26.3	23.4
Window Air-Conditioner - 2 or more	3.1	3.6	6.4	5.6
Dehumidifier	13.8	26.6	25.0	24.1
Bed Blanket	28.5	23.2	20.6	21.7
Electric Home Heating	4.7	17.6	9.5	10.2
Plug-In Space Heater	19.7	11.6	10.9	12.0
Built-In Space Heater	4.3	3.2	2.2	2.6
Plug-In Humidifier	20.1	20.3	19.1	19.4
Furnace Power Humidifier	13.4	15.6	18.8	17.7
Black & White Television	53.9	50.7	53.5	53.1
Colour Television	59.6	70.6	68.7	68.0
Record/Tape Player	63.8	71.5	71.3	70.5

* Including Bulk-Metered Apartments

Class of Service:	Rural Farm	Rural Non-Farm	Municipal	Regional Total
Total Number of Residential & Farm Households (Estimated)	22,006	55,938	302,230*	385,174*
<u>Electrical Appliances</u>	%	%	%	%
Electric Range, Any Type	81.1	81.7	84.2	83.7
Microwave Oven	2.4	2.4	1.5	1.7
Plug-In Kettle	59.3	61.8	62.2	62.0
Home Food Freezer	86.8	75.4	45.9	52.6
Electric Refrigerator, Any Type	98.4	98.9	98.3	98.4
2-Door Refrigerator-Freezer	42.4	46.3	46.6	46.3
Conventional Refrigerator	64.8	63.1	60.5	60.9
Automatic Dishwasher	23.5	20.5	14.7	16.1
Automatic Washer	45.3	52.3	44.4	45.6
Conventional Washer	48.1	39.0	27.7	30.5
Combination Washer-Dryer	1.6	1.8	1.8	1.8
Clothes Dryer	58.5	59.5	37.9	42.2
Water Heater	83.8	71.4	35.6	43.6
Central Air-Conditioning	2.5	5.5	5.7	5.5
Window Air-Conditioner - 1	8.7	13.3	20.6	18.9
Window Air-Conditioner - 2 or more	2.2	2.2	3.8	3.5
Dehumidifier	13.9	32.1	24.3	24.9
Bed Blanket	25.5	20.7	16.7	17.9
Electric Home Heating	3.2	9.0	7.3	7.3
Plug-In Space Heater	19.1	12.5	9.4	10.4
Built-In Space Heater	4.4	2.9	1.8	2.1
Plug-In Humidifier	17.1	16.7	17.7	17.5
Furnace Power Humidifier	16.8	20.8	17.3	17.8
Black & White Television	53.9	53.9	48.6	49.7
Colour Television	55.3	65.7	68.3	67.2
Record/Tape Player	68.1	73.9	70.0	70.5

* Including Participating Non-Hydro Municipalities and Bulk-Metered Apartments

Class of Service:	Rural	Non-Farm	Municipal	Regional Total
	Farm			
Total Number of Residential & Farm Households (Estimated)	6,592	58,365	874,308*	939,265*
<u>Electrical Appliances</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
Electric Range, Any Type	92.6	91.7	90.1	90.3
Microwave Oven	4.8	3.7	1.9	2.0
Plug-In Kettle	71.4	66.9	60.7	61.1
Home Food Freezer	85.5	67.3	38.0	40.2
Electric Refrigerator, Any Type	99.0	99.0	98.5	98.6
2-Door Refrigerator-Freezer	44.2	53.0	43.7	44.3
Conventional Refrigerator	63.7	55.3	61.9	60.4
Automatic Dishwasher	33.6	32.0	19.1	20.0
Automatic Washer	48.6	64.2	41.3	42.8
Conventional Washer	41.6	28.0	23.5	24.0
Combination Washer-Dryer	2.5	1.8	1.9	1.9
Clothes Dryer	64.5	67.4	35.0	37.2
Water Heater	97.9	71.4	44.1	46.2
Central Air-Conditioning	2.7	10.2	9.2	9.2
Window Air-Conditioner - 1	8.8	12.2	18.2	17.7
Window Air-Conditioner - 2 or more	2.1	2.8	3.6	3.5
Dehumidifier	12.7	22.9	19.5	19.6
Bed Blanket	29.0	17.2	15.3	15.5
Electric Home Heating	5.6	17.6	7.6	8.2
Plug-In Space Heater	15.2	12.0	10.3	10.4
Built-In Space Heater	3.9	2.6	1.9	1.9
Plug-In Humidifier	19.9	20.2	24.0	23.8
Furnace Power Humidifier	16.1	28.4	17.8	18.5
Black & White Television	52.6	53.7	53.9	53.9
Colour Television	64.0	72.8	64.9	65.4
Record/Tape Player	68.7	80.6	69.6	72.4

* Including Bulk-Metered Apartments

Class of Service:	Rural Farm	Rural Non-Farm	Municipal	Regional Total
Total Number of Residential & Farm Households (Estimated)	23,069	62,614	47,949*	133,632*
<u>Electrical Appliances</u>	%	%	%	%
Electric Range, Any Type	90.8	90.1	92.3	91.4
Microwave Oven	2.3	2.5	1.8	2.3
Plug-In Kettle	66.3	68.8	73.9	70.2
Home Food Freezer	86.0	72.2	60.5	69.9
Electric Refrigerator, Any Type	99.3	99.4	99.0	99.2
2-Door Refrigerator-Freezer	34.7	42.0	43.6	41.3
Conventional Refrigerator	70.2	64.6	62.3	62.1
Automatic Dishwasher	23.0	18.7	21.5	20.5
Automatic Washer	39.6	41.2	46.4	42.8
Conventional Washer	50.7	45.1	31.5	41.2
Combination Washer-Dryer	2.2	2.5	2.1	2.3
Clothes Dryer	64.0	59.0	52.6	57.6
Water Heater	94.2	89.8	68.7	83.0
Central Air-Conditioning	1.2	2.2	1.8	1.9
Window Air-Conditioner - 1	4.1	7.5	10.3	8.0
Window Air-Conditioner - 2 or more	.3	.6	1.3	.8
Dehumidifier	7.2	16.0	18.9	15.5
Bed Blanket	25.3	20.8	22.1	22.1
Electric Home Heating	6.0	32.1	17.3	22.3
Plug-In Space Heater	15.8	10.6	11.0	11.6
Built-In Space Heater	3.9	3.2	2.6	3.1
Plug-In Humidifier	23.1	22.5	25.4	23.8
Furnace Power Humidifier	10.6	9.4	12.6	10.8
Black & White Television	57.0	50.9	45.4	50.0
Colour Television	54.1	61.6	69.6	63.3
Record/Tape Player	61.3	69.3	69.6	68.0

* Including Bulk-Metered Apartments

APPLIANCE SATURATION STATISTICS IN EASTERN REGION

1976

Class of Service:	Rural	Non-Farm	Municipal	Regional Total
	Rural Farm	Non-Farm	Municipal	Total
Total Number of Residential & Farm Households (Estimated)	30,593	92,722	229,548*	352,863*
<u>Electrical Appliances</u>				
Electric Range, Any Type	85.9	89.2	95.4	93.0
Microwave Oven	.9	2.0	1.6	1.6
Plug-In Kettle	63.8	69.1	70.6	69.6
Home Food Freezer	85.7	74.0	49.5	59.1
Electric Refrigerator, Any Type	99.0	99.4	99.3	99.3
2-Door Refrigerator-Freezer	34.6	43.3	36.0	44.3
Conventional Refrigerator	70.1	64.1	59.5	61.3
Automatic Dishwasher	19.1	22.5	26.0	24.4
Automatic Washer	37.2	50.6	50.5	49.3
Conventional Washer	53.4	39.2	23.8	30.4
Combination Washer-Dryer	2.6	3.0	2.7	2.8
Clothes Dryer	55.8	65.4	52.2	56.0
Water Heater	91.4	87.1	79.2	87.4
Central Air-Conditioning	1.0	3.0	6.0	4.8
Window Air-Conditioner - 1	5.8	8.2	12.6	10.8
Window Air-Conditioner - 2 or more	.4	.9	1.8	1.5
Dehumidifier	6.2	24.0	22.0	21.2
Bed Blanket	22.2	19.2	19.6	19.8
Electric Home Heating	6.1	18.9	8.0	10.7
Plug-In Space Heater	17.9	11.0	11.6	12.0
Built-In Space Heater	3.4	2.3	2.7	2.6
Plug-In Humidifier	16.5	18.9	20.2	19.5
Furnace Power Humidifier	11.3	13.6	17.8	16.1
Black & White Television	58.3	55.0	53.8	54.6
Colour Television	54.0	64.6	67.1	65.3
Record/Tape Player	60.8	71.8	72.3	71.2

* Including Participating Non-Hydro Municipalities and Bulk-Metered Apartments

<u>Class of Service:</u>	<u>Rural Farm</u>	<u>Rural Non-Farm</u>	<u>Local Systems</u>	<u>Municipal</u>	<u>Regional Total</u>
Total Number of Residential & Farm Households (Estimated)	3,282	44,888	22,874	75,102*	146,146*
<u>Electrical Appliances</u>	%	%	%	%	%
Electric Range, Any Type	89.1	88.4	89.5	94.5	91.8
Microwave Oven	1.8	1.2	.8	1.9	1.5
Plug-In Kettle	67.8	71.2	71.3	67.3	69.1
Home Food Freezer	87.9	70.2	55.7	57.3	61.7
Electric Refrigerator, Any Type	98.6	99.3	98.7	98.7	98.9
2-Door Refrigerator-Freezer	30.8	40.0	43.0	42.7	41.7
Conventional Refrigerator	71.1	64.9	61.4	62.2	62.6
Automatic Dishwasher	14.0	13.7	14.0	19.8	16.9
Automatic Washer	38.4	45.9	47.2	52.3	49.3
Conventional Washer	56.5	42.2	36.3	27.0	33.8
Combination Washer-Dryer	2.7	2.1	2.3	1.9	2.0
Clothes Dryer	63.5	63.4	49.4	51.4	55.0
Water Heater	88.8	85.2	56.0	72.1	74.0
Central Air-Conditioning	.2	.6	1.0	1.3	1.0
Window Air-Conditioner - 1	2.3	2.8	6.5	4.0	4.0
Window Air-Conditioner - 2 or more	-	.2	.5	.5	.4
Dehumidifier	5.3	8.3	6.5	15.8	11.8
Bed Blanket	15.6	9.5	11.4	13.1	11.8
Electric Home Heating	8.2	18.7	10.6	15.0	15.3
Plug-In Space Heater	14.2	7.9	8.7	10.5	9.5
Built-In Space Heater	2.6	2.5	2.8	2.7	2.7
Plug-In Humidifier	9.6	10.8	15.7	14.8	13.6
Furnace Power Humidifier	9.1	6.6	10.8	12.9	10.6
Black & White Television	52.8	49.7	49.4	50.5	50.1
Colour Television	48.1	67.2	66.0	74.6	70.3
Record/Tape Player	55.7	68.7	61.3	72.3	69.0

* Including Participating Non-Hydro Municipalities and Bulk-Metered Apartments

Class of Service:	Rural Farm	Rural Non-Farm	Local Systems	Municipal	Regional Total
Total Number of Residential & Farm Households (Estimated)	1,394	14,236	1,265	44,437*	61,332*
<u>Electrical Appliances</u>	%	%	%	%	%
Electric Range, Any Type	79.0	83.5	71.0	96.0	92.1
Microwave Oven	.5	1.2	1.1	2.1	1.8
Plug-In Kettle	52.7	58.9	56.2	68.6	65.7
Home Food Freezer	88.7	70.9	58.7	59.4	62.7
Electric Refrigerator, Any Type	99.1	98.9	97.1	99.6	99.4
2-Door Refrigerator-Freezer	30.2	39.0	46.0	43.9	42.5
Conventional Refrigerator	72.2	65.9	54.2	61.3	62.3
Automatic Dishwasher	8.0	14.0	14.6	19.1	17.6
Automatic Washer	21.6	42.0	52.9	58.3	53.6
Conventional Washer	69.4	42.7	32.1	26.6	31.4
Combination Washer-Dryer	1.3	1.7	5.5	1.3	1.5
Clothes Dryer	43.2	54.0	48.6	58.7	57.1
Water Heater	82.5	82.3	45.2	56.9	63.1
Central Air-Conditioning	.5	1.0	.2	1.2	1.1
Window Air-Conditioner - 1	.8	3.4	4.4	3.3	3.3
Window Air-Conditioner - 2 or more	-	-	-	.1	.1
Dehumidifier	2.6	5.4	4.8	6.6	6.2
Bed Blanket	13.2	11.6	9.1	13.4	12.9
Electric Home Heating	4.5	17.2	7.9	10.0	11.5
Plug-In Space Heater	17.0	11.2	8.5	11.0	11.1
Built-in Space Heater	4.1	3.1	1.9	3.1	3.1
Plug-In Humidifier	11.1	10.9	11.1	10.0	10.3
Furnace Power Humidifier	4.5	4.6	3.4	10.8	9.1
Black & White Television	61.4	52.3	49.1	52.5	54.6
Colour Television	37.9	57.9	62.5	67.5	64.5
Record/Tape Player	51.6	70.2	61.1	69.1	69.0

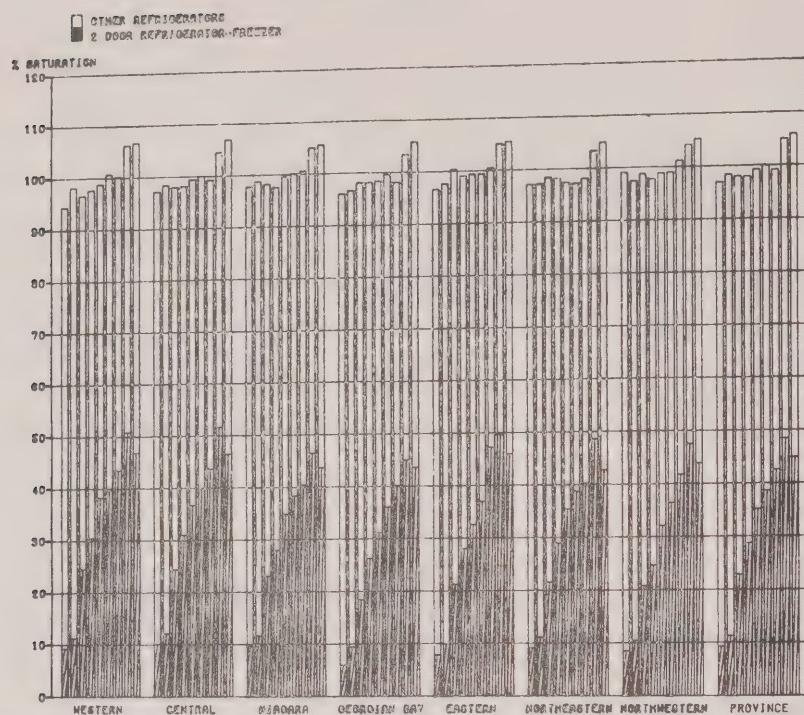
* Including Participating Non-Hydro Municipalities and Bulk-Metered Apartments.

COMPARATIVE HISTORICAL SATURATION STATISTICS

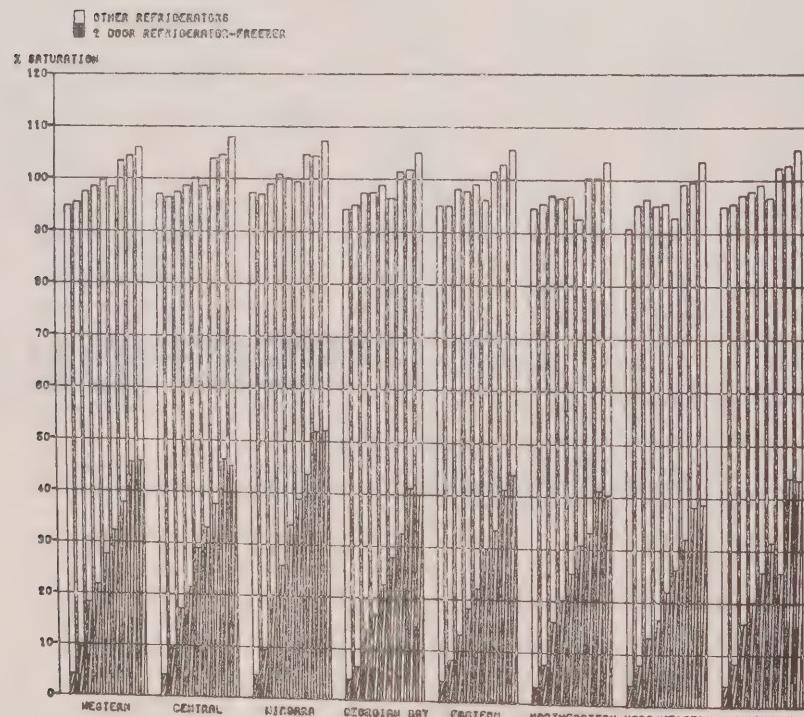
SECTION IV

COMPARATIVE REGIONAL RESULTS 1960-76

SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976
 ELECTRIC REFRIGERATORS, ALL TYPES
 MUNICIPAL



RURAL AND L. S.



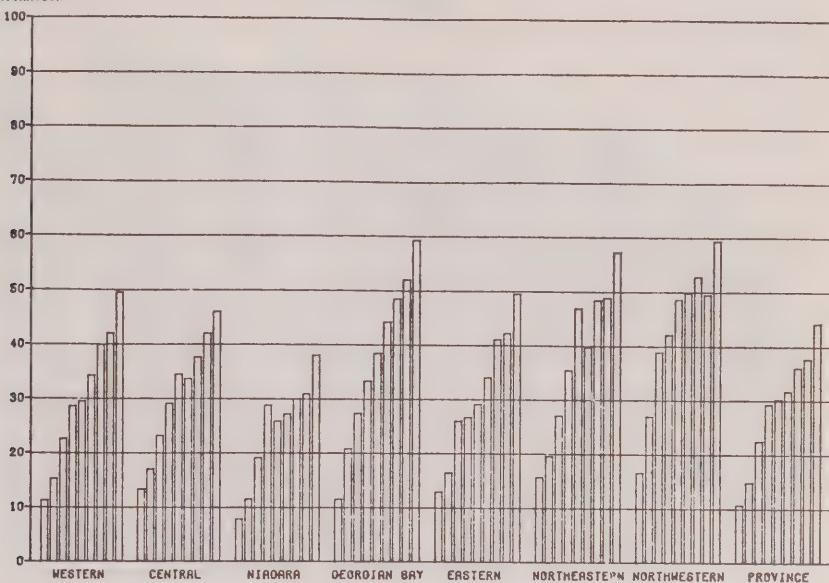
COMPARATIVE REGIONAL RESULTS 1960-76

SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976

HOME FOOD FREEZER

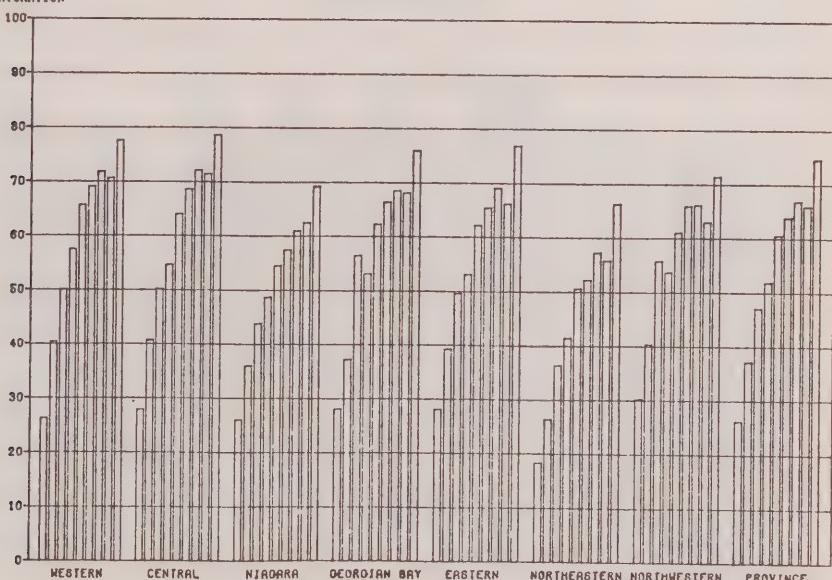
MUNICIPAL

Z SATURATION



RURAL AND L. S.

Z SATURATION



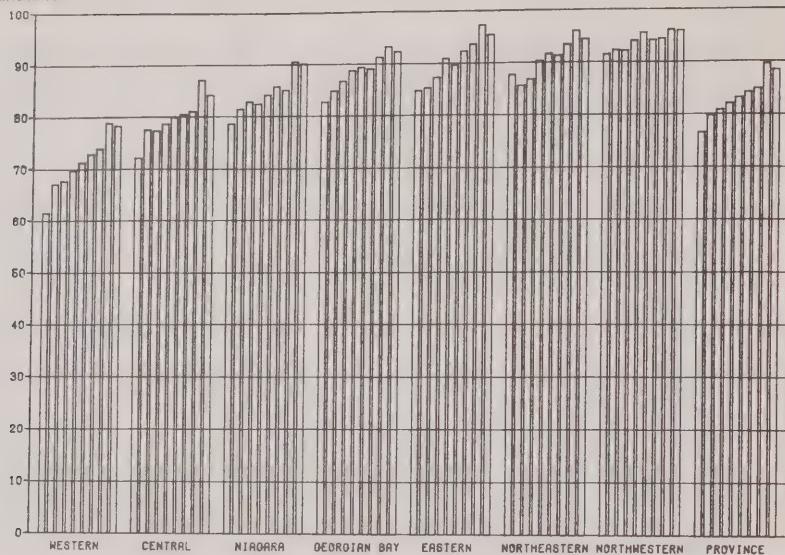
COMPARATIVE REGIONAL RESULTS 1960-76

SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976

ELECTRIC RANGES. ALL TYPES

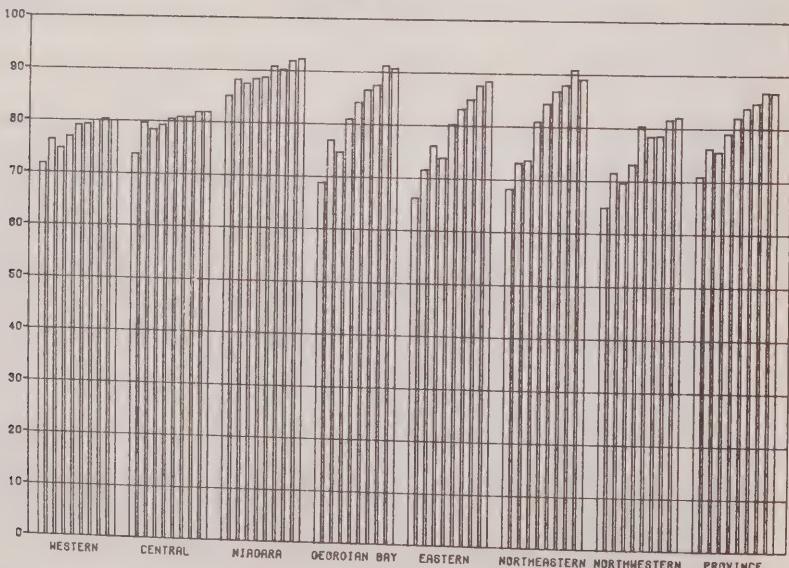
MUNICIPAL

% SATURATION



RURAL AND L. S.

% SATURATION



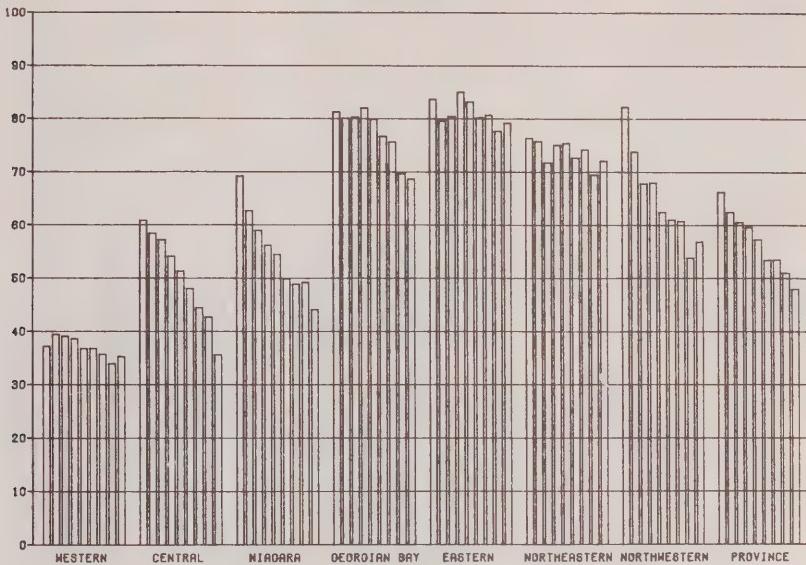
COMPARATIVE REGIONAL RESULTS 1960-76

SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976

ELECTRIC WATER HEATER

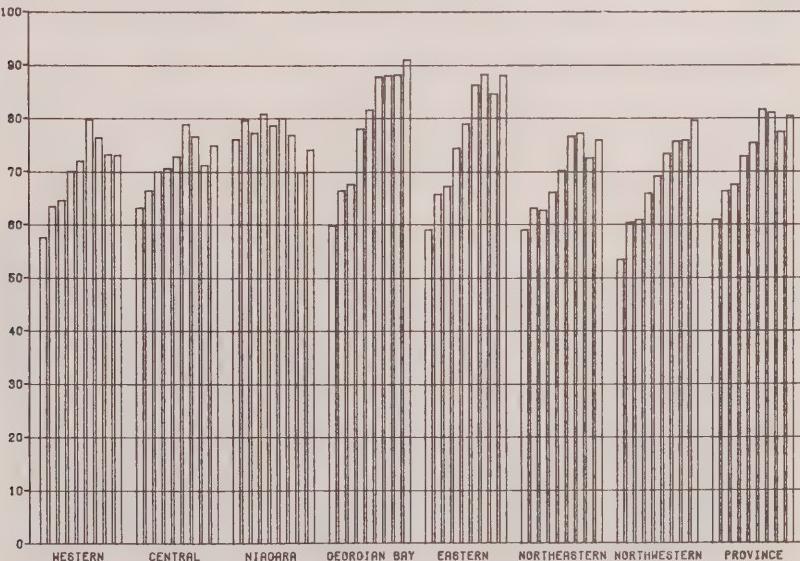
MUNICIPAL

% SATURATION



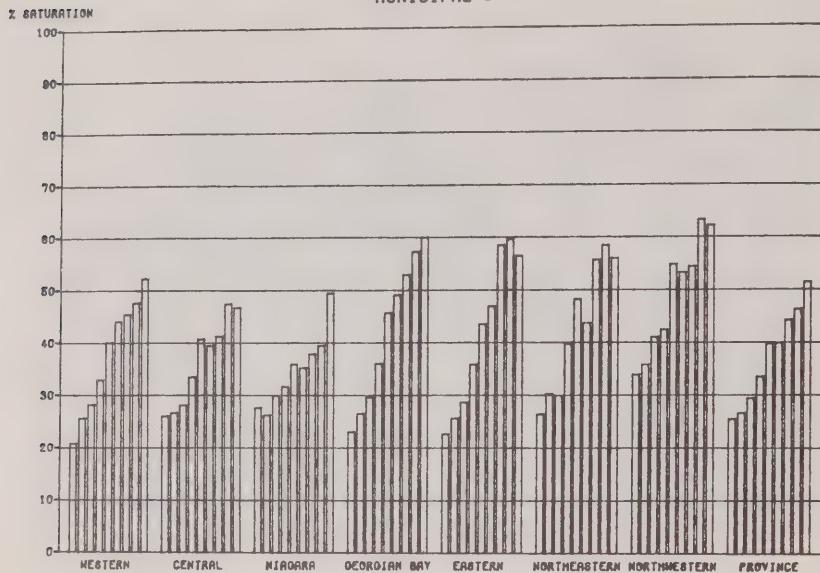
RURAL AND L. S.

% SATURATION



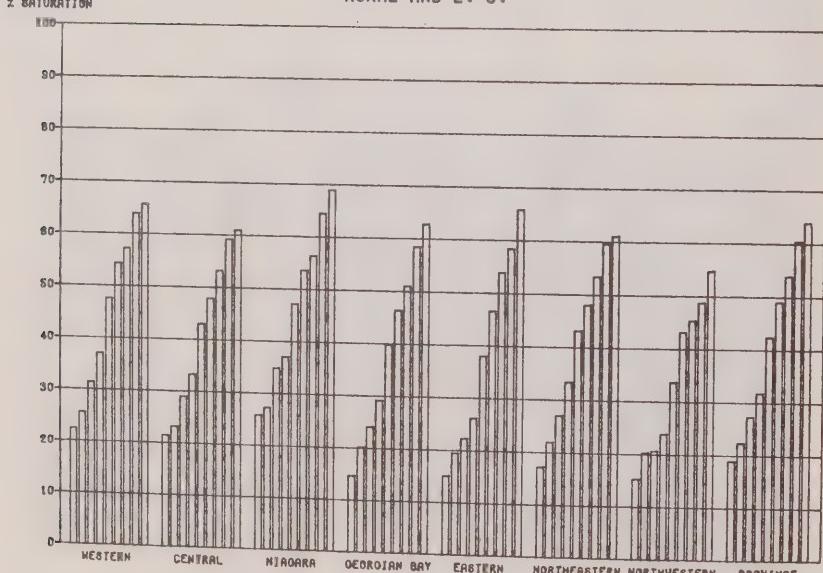
COMPARATIVE REGIONAL RESULTS 1960-76

SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976
ELECTRIC CLOTHES DRYER
MUNICIPAL *



* BULK METERED APARTMENTS ARE EXCLUDED

RURAL AND L. S.



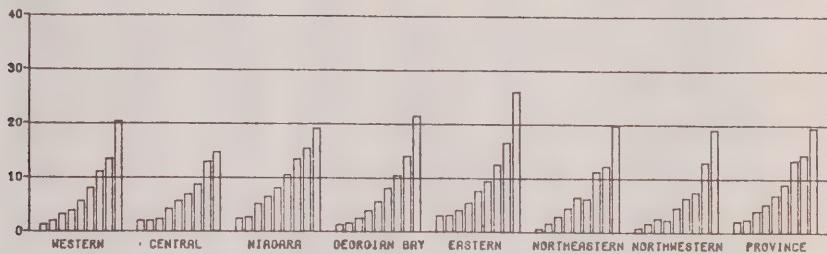
COMPARATIVE REGIONAL RESULTS 1960-76

SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976

ELECTRIC DISHWASHERS, ALL TYPES

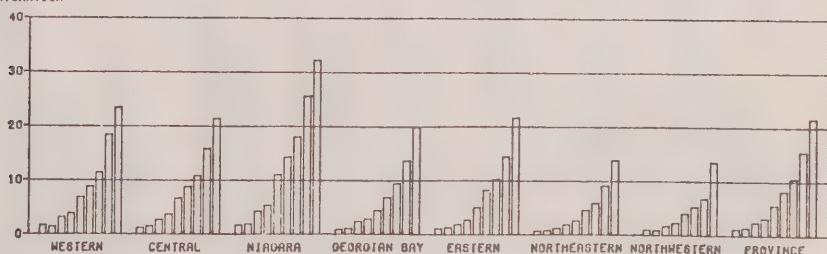
MUNICIPAL

% SATURATION



RURAL AND L. S.

% SATURATION



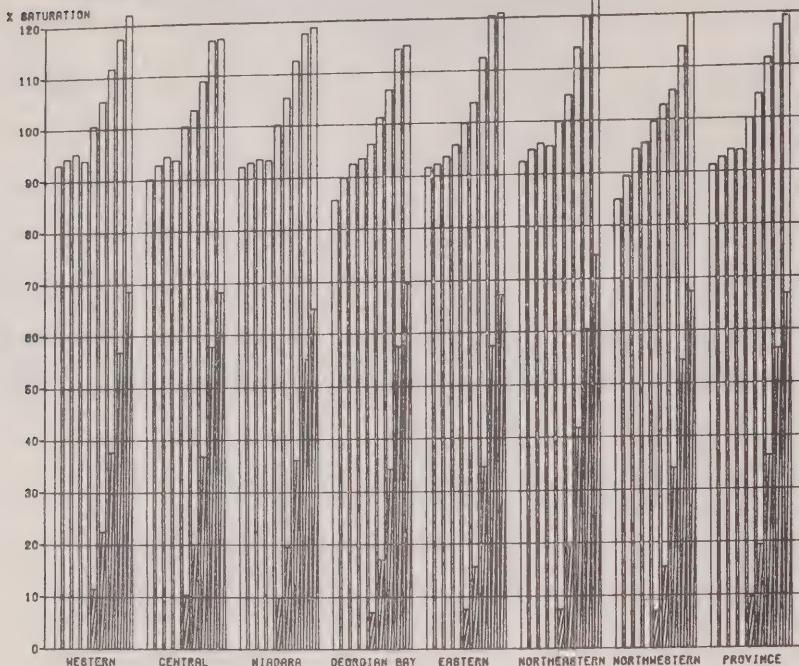
COMPARATIVE REGIONAL RESULTS 1960-76

SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976

TELEVISION, B&W AND COLOUR

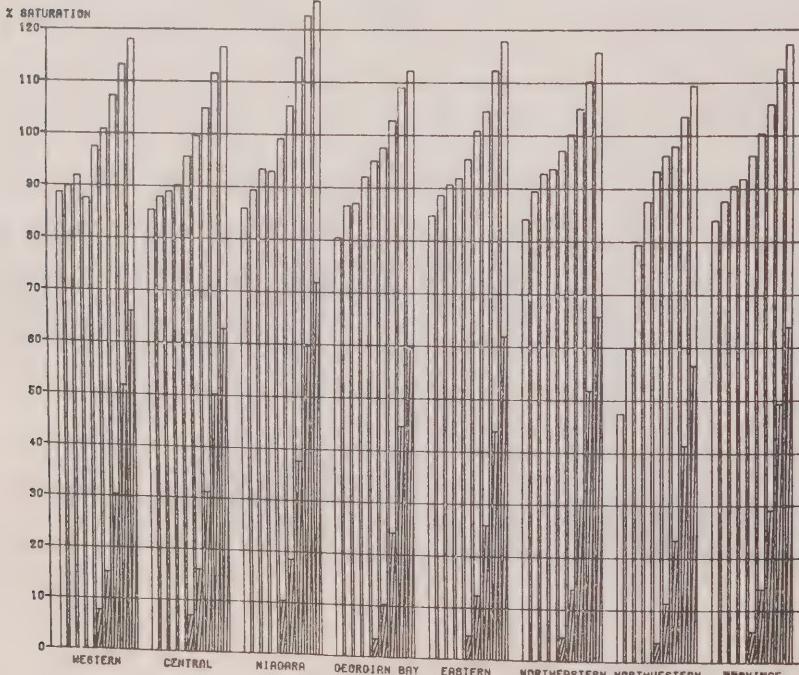
MUNICIPAL

■ BLACK AND WHITE TELEVISION
□ COLOUR TELEVISION



RURAL AND L. S.

■ BLACK AND WHITE TELEVISION
□ COLOUR TELEVISION



CROSS-TABULATIONS OF SELECTED APPLIANCES

SECTION V

**ONTARIO HOMES, BY TYPE OF HOME HEATING FUEL,
SHOWING THE SATURATION OF
SELECTED APPLIANCES AND FACILITIES**

1976

MUNICIPAL

<u>Selected Appliances & Facilities</u>	<u>Home Heating Fuel</u>			
	<u>Electricity</u>	<u>Gas</u>	<u>Oil</u>	<u>Other</u>
	%	%	%	%
Electric Range, All Types	97.0	76.5	93.5	91.0
Gas Range, All Types	2.7	25.3	6.6	8.2
Electric Clothes Dryer	50.2	51.8	60.8	4.6
Gas Clothes Dryer	.9	14.4	1.3	1.5
Electric Water Heater	81.9	27.8	89.0	17.5
Gas Water Heater	3.7	70.6	7.0	6.1
Supplementary Electric Heating	9.5	13.4	16.5	5.6
Electric Blanket	16.5	18.8	20.8	11.6
Electric Humidifier, All Types	31.8	42.5	39.5	25.7

RURAL NON-FARM

<u>Selected Appliances & Facilities</u>	<u>Home Heating Fuel</u>			
	<u>Electricity</u>	<u>Gas</u>	<u>Oil</u>	<u>Other</u>
	%	%	%	%
Electric Range, All Types	96.6	67.2	90.9	67.3
Gas Range, All Types	2.9	34.5	8.3	21.7
Electric Clothes Dryer	72.5	55.5	69.4	31.0
Gas Clothes Dryer	.5	19.5	1.2	4.7
Electric Water Heater	97.8	33.5	94.1	57.2
Gas Water Heater	1.7	65.5	2.6	9.0
Supplementary Electric Heating	11.3	14.1	13.2	18.2
Electric Blanket	20.4	18.9	18.8	14.9
Electric Humidifier, All Types	29.9	38.4	34.3	9.0

M24

ONTARIO HOMES, BY TYPE OF
FUEL USED FOR WATER HEATING SHOWING THE
SATURATION OF SELECTED APPLIANCES AND FACILITIES

1976

MUNICIPAL

<u>Selected Appliances & Facilities</u>	<u>Water Heating Fuel</u>			
	<u>Electricity</u>	<u>Gas</u>	<u>Oil</u>	<u>Other</u>
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
Electric Range	92.2	73.2	95.9	94.6
Gas Range	7.8	28.9	3.8	4.4
Electric Clothes Dryer	58.3	50.3	49.1	3.3
Gas Clothes Dryer	2.4	16.7	.5	.1
Home Heated by Electricity	15.4	.8	3.5	11.8
Home Heated by Gas	20.4	90.3	3.1	5.4
Home Heated by Oil	60.4	6.6	90.5	6.8
Home Heated by Other Fuels	1.6	1.9	1.0	5.5
Automatic Washing Machine	53.6	62.4	-	-
Conventional Washer	28.4	23.8	79.8	28.0

M23

RURAL NON-FARM

<u>Selected Appliances & Facilities</u>	<u>Water Heating Fuel</u>			
	<u>Electricity</u>	<u>Gas</u>	<u>Oil</u>	<u>Other</u>
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
Electric Range	90.6	63.1	90.0	66.7
Gas Range	8.6	38.7	7.5	19.2
Electric Clothes Dryer	67.2	54.2	67.7	14.0
Gas Clothes Dryer	1.6	23.8	1.1	.5
Home Heated by Electricity	23.7	1.0	.9	7.1
Home Heated by Gas	6.9	90.1	.4	6.8
Home Heated by Oil	66.9	6.5	97.2	50.5
Home Heated by Other Fuels	2.2	2.4	1.3	29.5
Automatic Washing Machine	49.1	62.3	-	-
Conventional Washer	40.2	31.0	87.0	62.4

M26

ONTARIO HOMES, BY TYPE OF FUEL USED FOR COOKING,
SHOWING THE SATURATION OF
SELECTED APPLIANCES AND FACILITIES

1976

MUNICIPAL

<u>Selected Appliances & Facilities</u>	<u>Fuel Used for Cooking</u>		
	<u>Electricity</u>	<u>Gas</u>	<u>Other</u>
	%	%	%
Electric Refrigerator	98.8	97.9	96.8
Supplementary Electric Heating	13.6	11.7	12.0
Window Air-Conditioner	19.1	20.7	8.3
Electric Dehumidifier	22.3	16.2	5.6
Electric Humidifier	39.4	28.9	19.0
Automatic Washer	49.8	44.7	24.5
Conventional Washer	26.2	37.9	29.8
Combination Washer-Dryer	2.0	2.1	1.9
Electric Clothes Dryer	50.0	27.4	23.2
Electric Water Heater	58.6	30.7	55.6
Oil Home Heating	40.2	18.0	45.8

M25

RURAL NON-FARM

<u>Selected Appliances & Facilities</u>	<u>Fuel Used for Cooking</u>		
	<u>Electricity</u>	<u>Gas</u>	<u>Other</u>
	%	%	%
Electric Refrigerator	99.4	98.2	96.4
Supplementary Electric Heating	14.1	12.6	12.6
Window Air-Conditioner	10.4	11.3	3.3
Electric Dehumidifier	21.0	12.2	5.2
Electric Humidifier	33.1	22.5	12.4
Automatic Washer	50.5	33.5	16.2
Conventional Washer	39.2	50.8	59.1
Combination Washer-Dryer	2.3	2.7	2.1
Electric Clothes Dryer	65.5	36.4	24.0
Electric Water Heater	86.1	55.4	64.1
Oil Home Heating	61.9	43.1	62.0

**ONTARIO HOMES, BY TYPE OF TENURE
SHOWING THE SATURATION OF
SELECTED APPLIANCES AND FACILITIES**

1976

MUNICIPAL

<u>Selected Appliances & Facilities</u>	Tenure	
	<u>Owner Occupied</u>	<u>Tenant Occupied</u>
	%	%
Electric Range	84.6	90.9
Gas Range	16.3	9.0
Home Food Freezer	61.8	30.8
2-Door Refrigerator-Freezer	50.3	34.4
Conventional Refrigerator	48.1	63.9
Automatic Washer	65.7	12.2
Conventional Washer	27.9	27.3
Combination Washer-Dryer	1.9	2.4
Electric Clothes Dryer	62.2	13.2
Gas Clothes Dryer	8.9	1.4
Electric Water Heater	61.1	41.4
Gas Water Heater	38.0	19.0

RURAL NON-FARM

<u>Selected Appliances & Facilities</u>	Tenure	
	<u>Owner Occupied</u>	<u>Tenant Occupied</u>
	%	%
Electric Range	86.7	84.4
Gas Range	12.4	14.3
Home Food Freezer	74.2	62.8
2-Door Refrigerator-Freezer	43.7	40.6
Conventional Refrigerator	54.5	57.8
Automatic Washer	50.1	33.6
Conventional Washer	40.6	42.3
Combination Washer-Dryer	2.3	2.6
Electric Clothes Dryer	63.6	46.1
Gas Clothes Dryer	4.5	2.5
Electric Water Heater	82.1	81.6
Gas Water Heater	13.6	10.6

ONTARIO HOMES, BY AGE OF DWELLING
SHOWING THE SATURATION OF
SELECTED APPLIANCES AND FACILITIES

MUNICIPAL

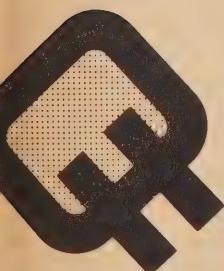
<u>Selected Appliances & Facilities</u>	Single-Family Dwelling Units Built				
	Before 1956	1956- 1960	1961- 1965	1966- 1970	After 1970
Electric Range, All Types	80.6	87.9	87.2	91.9	94.6
Gas Range, All Types	20.3	13.7	14.6	9.7	6.6
Water Heated by Electricity	67.7	65.2	52.3	55.6	47.1
Water Heated by Gas	31.0	34.4	47.8	44.6	51.0
Home Heated by Gas	40.2	41.7	57.2	53.2	61.0
Home Heated by Oil	55.0	54.8	30.7	26.4	13.9
Home Heated by Other Fuels	2.2	.6	.4	.7	.3

RURAL NON-FARM

<u>Selected Appliances & Facilities</u>	Single-Family Dwelling Units Built				
	Before 1956	1956- 1960	1961- 1965	1966- 1970	After 1970
Electric Range, All Types	81.5	88.1	88.4	92.2	94.3
Gas Range, All Types	16.6	11.9	11.3	8.1	6.2
Water Heated by Electricity	81.9	84.3	82.4	82.7	81.1
Water Heated by Gas	12.2	11.7	15.5	14.2	15.6
Home Heated by Gas	16.7	15.5	19.8	16.8	17.9
Home Heated by Oil	70.9	72.8	56.0	50.0	40.6
Home Heated by Other Fuels	4.7	2.6	2.5	1.6	1.8

CAZON
EP 20
- E51

energy
application
survey
1978



distribution & marketing branch



FOREWORD

This report contains the results of Hydro's tenth energy application survey. Inside are detailed analyses of appliance ownership in Ontario homes based on a sample survey conducted during November and December, 1978.

The efforts of many have combined to produce this report. A great number of Hydro personnel across the province as well as in Head Office provided their time and assistance to work on all phases. Particular thanks are due to the participating Municipal Utilities for their cooperation in providing the sample selection for the municipal portion of the survey.

The data collected should provide valuable insight into the probable future pattern of energy use. Knowledge of historical trends is vital, particularly in the case of major energy-using appliances, both for reasons of projecting future energy requirements and of viewing realistically the prospects for energy conservation.

July, 1979

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TORONTO, Ontario

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GENERAL

SECTION I

SAMPLE OF THE 1978 SURVEY FORM

90011 (front - white)
new 78-08

Dear Customer:

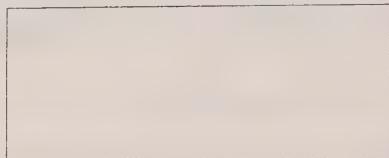
The information requested on the questionnaire will help us plan for your future electricity requirements. You can assist us by answering a few questions.

Upon completion simply detach and mail the questionnaire portion - no stamp or signature is required.

Please do it now while you are thinking about it!

Thank you for your cooperation.

your hydro



energy
application
survey



please mark X to those appliances
you own or use in your dwelling

▼ please detach here ▼

22 your kitchen

- 1 electric continuous clean range
- 2 electric self-cleaning range
- 3 other electric range (no built-in cleaning)
- 4 gas stove or range, any type
- 5 other cooking facilities (describe) _____
- 6 without cooking stove or range

- 27
- 1 2- or 3-door combination refrigerator-freezer is it frost free? yes no
 - 3 other electric refrigerator yes no
 - 5 without electric refrigerator
- 33
- A automatic electric dishwasher
 - B home food 'deep' freezer
 - C microwave oven
 - D electric kettle

40 your own laundry equipment

- Do not include coin-operated or any other laundry equipment used outside your home.*
- 5 automatic washer
 - 6 other electric washer (wringer, spin-dry, etc.)
 - 7 combination washer-dryer (one unit)
 - 8 electric clothes dryer
 - 9 gas clothes dryer

44 other electric appliances number in use

- A black and white television
- B colour television
- C swimming pool filter
- D electric sauna

50 water heating — fuel used in your water heater?

- 1 electricity gas oil
- 4 other or none don't know

- 51 if swimming pool heater, is it
- 1 electric oil or gas solar

53 principal heating equipment (check main heating only)

- 1 forced hot air or hot water furnace
- 2 heating stove (including space heater)
- 3 electric baseboard or cable
- 4 electric heat pump
- 5 other (describe) _____
- 6 don't know

54 fuel for principal heating equipment (check main heating only)

- 1 oil or other liquid fuel
- 2 piped or bottled gas
- 3 electricity
- 4 other (describe) _____
- 5 don't know

- 55 have you added insulation to the attic in the past two years?

- 1 yes no

- 56 have you added solar heating equipment in the past two years?

- 1 yes no

if yes, describe _____

57 supplementary equipment

in addition do you use number in use

- A central air-conditioning
- B electric power humidifier on furnace
- C plug-in electric space heater
- D built-in electric space heater
- E wood stove
- F electric blanket
- G window air-conditioner
- H humidifier (plug-in)
- I dehumidifier (plug-in)

73 your home — do you have piped running water?

- 1 from municipal or your own pressure system none

- 74 do you own your home rent your ho

75 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triple, etc.)
- 3 all others (describe) _____

76 when was your dwelling unit built?

Before 1956 1956-60 1961-65

1966-70 1971-75 After 1975

77 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) _____

79 number of persons living in your household?

HIGHLIGHTS OF THE 1978 ENERGY APPLICATION SURVEY

- There continues to be a significant increase in the demand for appliances that contribute to the amenities of life. Ownership of dishwashers, colour televisions, clothes dryers, central air-conditioning equipment and microwave ovens has increased, again led by colour television (from 66.2 per cent to 76.8 per cent saturation since 1976 - Tables M5, M6) and dishwashers (from 20.2 per cent to 24.3 per cent saturation since 1976 - Tables M5, M6). The increase is often the result of up-grading, e.g., and increase in the number of automatic washers and colour televisions at the expense of conventional wringer-washers and black and white televisions.
- In the case of automatic washers, clothes dryers, and dishwashers, a larger increase in saturation is evident for Ontario Hydro rural (retail) customers than for municipal customers (Table M6).
- The use of gas for home heating and water heating (Table M9) still represents about one-third of the residential market. When respondents state that they don't know their heating fuel, they generally are apartment dwellers.
- The use of oil for home heating has not changed over the past two years maintaining a saturation of about 42% (Table M9).
- Central air-conditioning has a higher saturation in the more southerly regions. There is a significant increase in the overall saturation from 6.7 per cent in 1976 to 9.1 per cent in 1978. Window air-conditioners on the other hand have not increased in saturation over the last two years (19.0 per cent in 1976 and 19.5 per cent in 1978) (Table M5).

- . As might be expected, there is a direct relationship between the consumption of electricity and the saturation of most electric appliances (Tables M7, M8). Three exceptions (conventional refrigerator, conventional washer, and black and white television) can be rationalized in terms of upgrading appliances with increased energy use.
- . Cross-tabulations point up some inter-relationships as to appliance ownership and type of fuel used, and as to type of home ownership and age of home.
 1. If electricity is used for home heating, there is little likelihood that gas will be used for the range, clothes dryer, or water heater, whereas the use of gas for home heating does not preclude the use of electricity as a fuel for these appliances. It does, however, have some influence toward the use of gas for the range and clothes dryer (approximately one-quarter of the total saturation), and a much greater influence in the case of the water heater (approximately three-quarters of the total). The use of oil home heating has a slight tendency to reduce electric appliance saturations as compared with all-electric homes. When oil is used for home heating, there is a low saturation of gas used for the range, clothes dryer, and water heater (Tables M21, M22).
 2. For those households that use gas or oil for water heating, there is a strong probability of the same respective use of fuel for home heating (Tables M23, M24).
 3. Generally speaking, householders living in their own homes have more modern appliances than tenants. The difference is more significant in urban areas than rural areas (Tables M27, M28).
 4. Trends in fuel use are related to age of the home. Newer homes generally use gas for home heating and water heating rather than oil for home heating and electricity for water heating. These trends are particularly apparent for municipal customers (Tables M29, M30).

SURVEY METHOD

The results of this survey are based on 76,764 processable responses to 117,334 questionnaires that were mailed to residential and farm customers selected at random from the latest billing records. The response rate of 65.4 per cent is considered to be adequate to ensure the reliability of all estimates published in this study.

The information was transferred from returned questionnaires onto magnetic tape for computer processing, utilizing the preprinted coding on the survey form. Our Computing Services Division was responsible for preparing the necessary programs for editing the questionnaires by the computer. The computer then automatically rejected wrong answers and duplicate questionnaires resulting from our follow-up. Finally, all tabulations, graphs, and analyses were produced via the computer.

A measurement of the non-response bias was made by comparing the results from successive batches of returns. A negligible difference was found between the answers of earlier and later respondents; suggesting that if non-respondents eventually replied to the survey, they would not have significantly different levels of appliance ownership from those who did respond.

Like the 1976 survey, a sample of households drawn from multiple dwelling units served in bulk by many municipalities was included. Since many large blocks of

households are served through a single meter, this sampling is required to maintain consistency with past survey results and comparability with saturation results published by other sources such as Statistics Canada. All tables and the accompanying saturation graphs reflect the responses of bulk-metered apartments.

No corrections have been made for non-participating municipalities as indicated by our percentage coverage in the Sample and Response Table (page 9). Household estimates used on tables with 'M' prefix are based on September 1978 estimates, and correspond to the survey coverage, while Sample Characteristics Tables are based on actual year-end 1978 data.

An attempt was made both in the 1976 and this survey to clarify the questions regarding refrigerators and freezers. The 1978 results show a large increase in saturation for two-door refrigerator-freezers. (Readers will recall our cautionary note regarding the refrigerator question in the report of the last survey.) The large increase in saturation suggests that the 1976 results understated the ownership of two-door refrigerator-freezers. The possibility exists that the 1978 results overstates ownership of this appliance, but this will become evident in ensuing surveys.

SAMPLE AND RESPONSE

Municipal*

<u>Class of Customer</u>	<u>Singly-Metered Households</u>	<u>Bulk-Metered Apartments</u>	<u>Rural Non-Farm</u>	<u>Rural Farm</u>	<u>Total * Province</u>
Total Residential Households as of Dec. 31, 1978	1,832,309	436,419	435,450	115,150	2,819,328
Number of Questionnaires Mailed	60,431	8,564	34,717	13,632	117,344
Questionnaires Mailed as a Percentage of Total Households	3.2%	1.9%	7.9%	11.8%	4.2%
Number of Questionnaires Returned	39,335	2,736	25,299	9,384	76,754
Returns as a Percentage of Questionnaires Mailed	65.1%	31.9%	72.9%	68.8%	65.4%
Returns as a Percentage of Total Households	2.1%	.6%	5.8%	8.1%	2.7%

* Including Participating Non-Hydro Municipalities

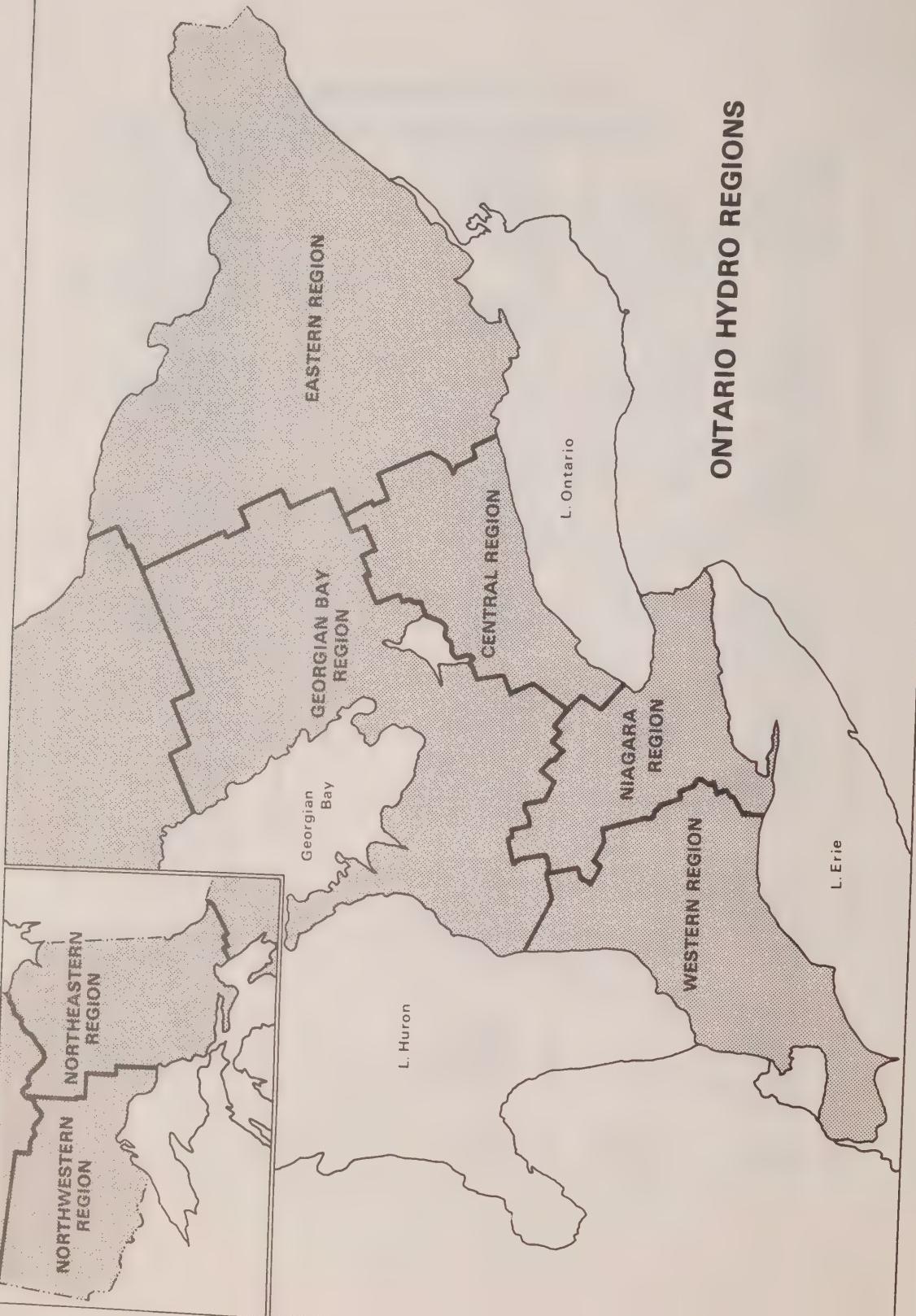
LIST OF PARTICIPATING RURAL OPERATING AREAS

NE	ALGOMA	N	LISTOWEL
GB	ALLISTON	NE	MANITOULIN
E	ARNPRIOR	C	MARKHAM
E	BANCROFT	NE	MATHESON
GB	BARRIE	GB	MINDEN
W	BEACHVILLE	NE	NEW LISKEARD
N	BEAMSVILLE	C	NEWMARKET
C	BOWMANVILLE	NE	NORTH BAY
GB	BRACEBRIDGE	GB	ORANGEVILLE
C	BRAMPTON	GB	ORILLIA
N	BRANTFORD	GB	OWEN SOUND
E	BROCKVILLE	GB	PARRY SOUND
N	CAYUGA	GB	PENETANGUISHENE
W	CLINTON	E	PERTH
E	COBDEN	E	PETERBOROUGH
E	COBOURG	E	PICTON
NW	DRYDEN	N	SIMCOE
N	DUNDAS	GB	STAYNER
W	EAST ELGIN	N	STONEY CREEK
W	ESSEX	W	STRATHROY
GB	FENELON FALLS	NE	SUDBURY
NW	FORT FRANCES	NW	THUNDER BAY
E	FRANKFORD	NE	TIMMINS
NW	GERALDTON	E	TWEED
N	GUELPH	E	VANKLEEK HILL
GB	HUNTSVILLE	GB	WALKERTON
NE	KAPUSKASING	NE	WARREN
NW	KENORA	N	WELLAND
W	KENT	E	WINCHESTER
E	KINGSTON		
NE	KIRKLAND LAKE		
W	LAMBTON		

LIST OF PARTICIPATING MUNICIPALITIES

N	ACTON	N	FORT ERIE N.H.	GB	PARRY SOUND
E	ALEXANDRIA	E	GLOUCESTER TWP	GB	PENETANGUISHENE
E	ALMONTE	W	GODERICH	E	PERTH
W	ALVINSTON	W	GRAND BEND	E	PETERBOROUGH
W	AMHERSTBURG	GB	GRAVENHURST	W	PETROLIA
E	ARNPRIOR	N	GUELPH	E	PICTON
NW	ATIKOKAN TWP	N	HAMILTON	N	PORT COLBORNE
W	AYLMER	W	HARROW	C	PORT CREDIT
		GB	HUNTSVILLE	E	PORT HOPE
E	BARRY'S BAY			GB	PORT McNICOLL
GB	BEETON			C	PORT PERRY
W	BELLE RIVER			W	PORT STANLEY
W	BELMONT				
W	BLENHEIM	W	INGERSOLL	E	RENFREW
W	BLYTH			E	RICHMOND
W	BOTHWELL			C	RICHMOND HILL
C	BOWMANVILLE	NE	KAPUSKASING	W	RIDGETOWN
E	BRAESIDE	E	KEMPTVILLE	E	ROCKLAND
GB	BRADFORD	NW	KENORA	W	RODNEY
C	BRAMPTON	E	KILLALOE STATION	N	ST CATHARINES
N	BRANTFORD TWP	GB	KINCARDINE	W	ST CLAIR BEACH
E	BROCKVILLE	E	KINGSTON	W	ST THOMAS
		W	KINGSVILLE	W	SANDWICH WEST TWP
C	CALEDON			NE	SAULT STE MARIE N.H.
N	CALEDONIA	W	LAMBETH	C	SCARBOROUGH
E	CAMPBELLFORD	GB	LINDSAY	GB	SHELBURN
NE	CAPREOL	W	LONDON	NW	SIOUX LOOKOUT
E	CASSELMAN	GB	LUCKNOW	E	SMITH FALLS
E	CHALK RIVER			GB	SOUTHAMPTON
NE	CHAPLEAU TWP	GB	MEAFORD	N	STONEY CREEK
W	CHATHAM	GB	MIDLAND	C	STOUFFVILLE
W	CLINTON	E	MILLBROOK	W	STRATFORD
E	COBDEN	C	MILTON	W	STRATHROY
E	COBOURG	C	MISSISSAUGA	NE	STURGEON FALLS
NE	COCHRANE	W	MITCHELL	NE	SUDBURY
GB	COLLINGWOOD	W	MOUNT BRYDGES		
E	CORNWALL N.H.	GB	MOUNT FOREST	W	TECUMSEH
				W	THAMESFORD
				N	THOROLD
				NW	THUNDER BAY
E	DEEP RIVER	E	NAPANEE	W	TILBURY
W	DELWARE	E	NEPEAN TWP	W	TILLSONBURG
W	DORCHESTER	C	NEWCASTLE	C	TORONTO
N	DUNNVILLE	N	NIAGARA FALLS	E	TRENTON
GB	DURHAM	N	NIAGARA ON THE LAKE	GB	VICTORIA HARBOUR
W	DUTTON	NE	NORTH BAY	GB	WASAGA BEACH
		C	NORTH YORK	N	WATERFORD
C	EAST YORK			N	WELLAND
E	EGANVILLE	C	OAKVILLE	W	WEST LORNE
W	ERIEAU	E	OMEMEE	C	WHITBY
NE	ESPAÑOLA	GB	ORILLIA	W	WINDSOR
W	ESSEX	E	OTTAWA	GB	WINGHAM
C	ETOBICOKE	GB	OWEN SOUND	W	WOODSTOCK
W	EXETER			C	YORK
N	FERGUS	W	PARKHILL		
W	FOREST	N	PARIS		

ONTARIO HYDRO REGIONS



PROVINCIAL SATURATION STATISTICS OF SELECTED APPLIANCES

SECTION II

HS PROVINCIAL APPLIANCE SATURATION STATISTICS OF SELECTED APPLIANCES BY REGION*

1978

REGION	WESTERN	NIAGARA	CENTRAL GEORGIAN BAY	EASTERN	NORTH- EASTERN	NORTH- WESTERN	PROVINCIAL TOTAL
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	335253	370250	925700	147700	360050	137655	61425 2338033
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	82.1	85.4	89.2	92.5	93.7	93.5	93.8 88.8
MICROWAVE OVEN	5.0	3.9	4.3	5.4	4.4	5.0	4.6 4.5
PLUG-IN KETTLE	62.3	62.3	59.8	68.3	67.1	69.9	61.7 62.9
HOME FOOD FREEZER	56.9	52.1	38.4	70.8	59.9	62.8	62.4 50.7
ELECTRIC REFRIG, ANY TYPE	99.1	99.2	99.2	99.2	99.2	99.1	98.7 99.2
REFRIGERATOR - FREEZER	59.8	59.3	55.8	55.5	58.3	56.5	56.1 57.3
OTHER REFRIGERATOR	51.2	50.9	53.2	53.2	51.0	52.3	50.7 52.1
AUTOMATIC DISHWASHER	25.4	21.9	23.9	24.1	28.4	21.1	21.6 24.3
AUTOMATIC WASHER	59.6	52.3	47.0	50.6	56.4	56.3	59.3 52.2
OTHER WASHER	21.2	21.4	16.6	35.0	26.4	29.6	25.8 21.7
COMBINATION WASHER-DRYER	1.3	1.1	1.2	2.1	1.4	1.6	1.3 1.3
CLOTHES DRYER	56.4	47.4	40.4	63.9	62.8	62.2	62.6 50.6
WATER HEATER	45.6	40.3	42.7	83.3	85.5	73.0	57.6 54.1
CENTRAL AIR CONDITIONING	11.5	10.9	11.5	2.4	6.1	1.1	.6 9.1
WINDOW AIR COND. - ONE	23.9	19.1	18.3	8.7	12.7	5.3	3.8 16.6
WINDOW AIR COND. - 2 OR MORE	5.6	3.2	3.0	.8	1.8	.4	.4 2.9
DEHUMIDIFIER	22.2	23.1	18.4	16.5	21.1	13.4	7.0 19.4
BED BLANKET	18.8	14.0	14.1	19.8	17.6	10.8	10.3 15.3
ELECTRIC HOME HEATING	13.2	6.9	9.2	27.2	13.4	16.2	10.8 11.6
PLUG-IN SPACE HEATER	12.1	13.2	11.0	11.0	11.7	9.3	11.0 11.5
BUILT-IN SPACE HEATER	2.6	5.7	2.4	3.9	3.2	2.9	4.1 3.2
PLUG-IN HUMIDIFIER	20.7	16.6	23.2	24.2	19.9	16.3	13.1 20.7
POWER HUMIDIFIER ON FURNACE	22.8	22.1	22.6	13.7	20.9	12.2	10.1 20.8
BLACK & WHITE TELEVISION	45.3	43.9	45.4	41.7	45.6	43.6	43.6 44.8
COLOUR TELEVISION	78.6	78.7	75.7	73.9	76.2	80.0	75.7 76.8

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM NORMAL DEN	RURAL HIGH DEN	RURAL TOTAL	MUNICIPAL TOTAL*	PROVINCIAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	115150	194850	240600	550600	1787433	2338033
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	87.6	87.6	90.1	88.7	88.9	88.8
MICROWAVE OVEN	5.2	5.1	6.0	5.5	4.1	4.5
PLUG-IN KETTLE	61.4	63.2	66.7	64.3	62.4	62.9
HOME FOOD FREEZER	87.7	78.4	67.6	75.6	43.0	50.7
ELECTRIC REFRIG, ANY TYPE	98.8	98.9	99.3	99.1	99.2	99.2
REFRIGERATOR - FREEZER	51.8	57.6	62.1	58.4	57.0	57.3
OTHER REFRIGERATOR	58.3	52.2	48.4	51.8	52.2	52.1
AUTOMATIC DISHWASHER	28.9	24.0	29.0	27.2	23.4	24.3
AUTOMATIC WASHER	52.5	52.7	61.6	56.5	50.9	52.2
OTHER WASHER	40.0	37.5	28.7	34.2	17.9	21.7
COMBINATION WASHER-DRYER	1.8	1.4	1.7	1.6	1.2	1.3
CLOTHES DRYER	68.4	67.0	68.4	67.9	45.3	50.6
WATER HEATER	86.9	84.4	69.6	78.5	46.6	54.1
CENTRAL AIR CONDITIONING	2.7	4.0	6.9	5.0	10.4	9.1
WINDOW AIR COND. - ONE	9.4	9.9	12.9	11.1	18.3	16.6
WINDOW AIR COND. - 2 OR MORE	1.7	1.3	1.7	1.6	3.3	2.9
DEHUMIDIFIER	10.5	19.4	23.8	19.5	19.4	19.4
BED BLANKET	24.1	16.4	16.8	18.2	14.5	15.3
ELECTRIC HOME HEATING	6.3	23.1	19.8	18.1	9.6	11.6
PLUG-IN SPACE HEATER	16.5	10.0	10.5	11.5	11.5	11.5
BUILT-IN SPACE HEATER	4.9	3.2	3.1	3.5	3.1	3.2
PLUG-IN HUMIDIFIER	20.9	19.2	19.1	19.5	21.0	20.7
POWER HUMIDIFIER ON FURNACE	17.4	15.9	20.2	18.1	21.6	20.8
BLACK & WHITE TELEVISION	47.1	45.6	43.0	44.8	44.8	44.8
COLOUR TELEVISION	69.4	72.4	81.3	75.7	77.1	76.8

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

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SATURATION STATISTICS OF MUNICIPAL RESPONDENTS
BY ANNUAL KWH-USE BLOCKS, 1978

ANNUAL ENERGY IN KWH	500-	2500-	4500-	6500-	8500-	10500-	12500-	14500 AND OVER
SAMPLE SIZE	1043	1907	2954	3231	2911	2178	1479	3567
ELECTRICAL APPLIANCES	PERCENT							
RANGE, SELF-CLEAN	3.8	4.4	9.2	10.6	13.1	13.0	14.9	19.1
RANGE, OTHER	72.2	65.9	71.0	76.5	78.4	81.7	81.9	79.9
MICROWAVE OVEN	2.1	1.8	3.2	3.9	4.5	5.4	6.4	9.5
HOME FOOD FREEZER	13.5	32.6	49.7	56.9	62.3	67.5	67.2	70.1
REFR-FREEZER	11.9	13.2	11.1	10.7	9.1	10.0	9.9	8.8
REFR-FREEZER FROSTFREE	16.8	34.5	48.4	51.8	56.3	57.3	61.0	63.6
CONVENTIONAL REFRIGERATOR	73.3	57.4	48.4	47.2	47.7	45.8	45.6	44.0
AUTOMATIC DISHWASHER	4.8	7.1	16.2	22.0	29.1	34.3	43.3	51.7
AUTOMATIC WASHER	15.5	32.6	54.5	62.3	70.4	75.7	81.3	83.2
CONVENTIONAL WASHER	22.6	35.3	31.8	26.5	22.1	18.5	13.9	12.5
COMBINATION WASHER-DRYER	1.5	2.4	2.0	1.1	1.2	.9	.7	1.4
CLOTHES DRYER	15.2	25.4	46.8	57.1	67.7	74.3	80.9	84.0
WATER HEATER	27.7	34.0	46.1	54.4	68.7	79.3	82.6	90.7
SWIMMING-POOL FILTER	1.1	1.1	1.9	3.2	6.2	7.8	9.9	13.5
SUPPL. SPACE HEATER	9.1	9.9	11.3	13.6	16.2	18.3	21.8	20.9
CENTRAL AIR CONDITIONING	2.3	1.9	4.6	6.6	10.2	13.0	16.2	17.0
WINDOW AIR CONDITIONER	13.2	17.1	18.7	21.6	22.2	22.4	21.0	19.9
DEHUMIDIFIER	5.1	7.9	15.7	21.5	26.1	30.6	33.9	33.3
PLUG-IN HUMIDIFIER	19.7	18.7	17.6	17.7	19.1	19.8	20.7	24.8
FURNACE POWER HUMIDIFIER	4.9	12.2	23.3	25.2	29.8	30.9	31.9	26.7
BED BLANKET	9.6	13.6	15.5	16.5	18.0	18.8	21.3	20.5
BLACK & WHITE TELEVISION	46.9	42.3	43.5	45.3	46.4	49.3	47.1	48.5
COLOUR TELEVISION	54.5	68.5	76.3	79.9	82.9	84.6	86.3	87.3

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**SATURATION STATISTICS OF RURAL NON-FARM RESPONDENTS
BY ANNUAL KWH-USE BLOCKS, 1978**

ANNUAL ENERGY IN KWH	500- 2499.9	2500- 4499.9	4500- 6499.9	6500- 8499.9	8500- 10499.9	10500- 12499.9	12500- 14499.9	14500 AND OVER
SAMPLE SIZE	672	1698	2824	3461	3519	2913	2083	7881
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
RANGE, SELF-CLEAN	4.0	3.5	5.2	7.3	8.8	10.4	12.8	14.9
RANGE, OTHER	58.9	63.7	72.9	77.1	81.8	82.3	81.9	82.8
MICROWAVE OVEN	1.9	2.1	2.6	3.3	4.4	5.6	5.9	8.4
HOME FOOD FREEZER	33.3	48.2	64.2	73.3	77.8	81.6	82.6	79.8
REFR-FREEZER	13.0	11.5	10.5	10.7	9.9	9.7	9.6	8.9
REFR-FREEZER FROSTFREE	20.4	27.7	37.2	45.0	48.3	52.5	53.4	59.4
CONVENTIONAL REFRIGERATOR	68.9	64.0	56.9	51.4	50.8	48.8	48.9	46.2
AUTOMATIC DISHWASHER	4.5	5.4	9.0	14.4	19.8	25.3	31.6	40.4
AUTOMATIC WASHER	13.5	19.5	32.8	42.2	52.5	61.8	66.6	73.7
CONVENTIONAL WASHER	44.1	51.9	50.7	46.7	40.4	32.4	28.0	21.4
COMBINATION WASHER-DRYER	1.8	3.0	2.6	1.7	1.5	1.5	1.3	1.1
CLOTHES DRYER	18.2	26.7	42.6	58.9	69.2	77.1	81.4	83.4
WATER HEATER	36.8	49.9	60.2	71.3	81.2	86.1	89.9	95.6
SWIMMING-POOL FILTER	.6	1.0	1.0	2.4	4.3	7.3	9.1	12.3
SUPPL. SPACE HEATER	13.1	11.4	11.9	11.9	13.9	14.9	15.0	14.2
CENTRAL AIR CONDITIONING	1.8	1.3	1.4	2.6	3.7	4.7	5.0	7.0
WINDOW AIR CONDITIONER	6.1	8.0	9.9	12.5	11.8	13.3	13.5	13.2
DEHUMIDIFIER	4.6	6.1	10.7	15.7	19.8	23.2	25.4	27.9
PLUG-IN HUMIDIFIER	8.6	10.8	13.7	16.6	17.5	19.0	19.0	26.6
FURNACE POWER HUMIDIFIER	4.3	8.7	13.5	16.3	18.0	22.5	22.3	15.4
BED BLANKET	14.9	16.4	15.9	15.8	15.7	17.1	17.2	17.5
BLACK & WHITE TELEVISION	54.2	47.9	43.1	41.2	42.4	44.2	45.5	42.9
COLOUR TELEVISION	44.2	57.0	67.7	75.2	76.7	79.2	80.7	83.2

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SATURATION STATISTICS OF SELECTED APPLIANCES
USING OTHER FORMS OF ENERGY
BY CLASS OF SERVICE

1978

	Rural Farm	Rural Non-Farm	Municipal*	Provincial Total*
Total Number of Residential & Farm Households (Estimated)	115,150	435,450	1,787,433	2,338,033
Customers Using	%	%	%	%
Gas Range or Rangette	13.3	11.8	12.6	12.5
Gas Clothes Dryer	3.5	4.8	5.8	5.5
Gas Water Heating	8.1	17.4	34.5	28.4
Gas Home Heating	11.8	20.9	37.5	33.1
Oil Water Heating	1.5	3.4	3.1	3.1
Oil Home Heating	72.9	53.9	37.4	42.2
Other Fuel for Water Heating or no water heater	2.3	1.6	.4	.7
Other Fuel for Home Heating	8.3	2.9	.4	1.3
Do Not Know Fuel For Water Heating	.6	.9	15.3	11.9
Do Not Know Fuel For Home Heating	.7	1.0	15.1	11.8

* Including Participating Non-Hydro Municipalities and Bulk-Metered Apartments

REGIONAL SATURATION STATISTICS OF SELECTED APPLIANCES

SECTION III

SAMPLE CHARACTERISTICS - MUNICIPAL HOUSEHOLDS *

	<u>Western</u>	<u>Niagara</u>	<u>Central</u>	<u>Georgian Bay</u>	<u>Eastern</u>	<u>North-Eastern</u>	<u>North-Western</u>	<u>Provincial Total</u>
Total Number of Households (As at Dec. 31, 1978)	288,538	451,378	989,678	98,519	318,482	72,176	49,957	2,268,728
Number of Participating Utilities	43	17	18	22	32	9	4	145
Number of Households Served by These Utilities (Estimated, As at Dec. 31, 1978)	242,453	295,450	865,850	54,300	218,900	67,130	43,350	1,787,433
Per Cent Coverage	84.0%	65.4%	87.4%	55.1%	68.7%	93.0%	86.7%	78.7%
Sample Size	15,729	10,783	18,599	6,026	11,314	4,569	1,975	68,995
Net Processable Returns:								
Total	9,742	6,280	10,495	4,004	7,383	2,802	1,365	42,071
As a Percentage of Total Households	3.3%	1.3%	1.0%	4.0%	2.3%	3.8%	2.7%	1.8%
As a Percentage of Sample	61.9%	58.2%	56.4%	66.4%	65.2%	61.3%	69.1%	60.9%

* Includes Bulk-Metered Apartments and Non-Hydro Municipalities

REGION	WESTERN	NIAGARA	CENTRAL	GEORGIAN BAY	EASTERN	NORTH- EASTERN	NORTH- WESTERN	PROVINCIAL TOTAL
TOTAL NO. OF RES. HOUSEHOLDS OF PARTICIPATING MUNICIPALITIES (ESTIMATED)	242453	295450	865850	54300	218900	67130	43350	1787433
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	82.4	86.3	88.8	92.6	95.4	95.2	96.9	88.9
MICROWAVE OVEN	4.5	3.3	4.0	5.1	4.5	6.0	4.8	4.1
PLUG-IN KETTLE	62.5	63.2	59.4	70.6	68.0	70.8	64.8	62.4
HOME FOOD FREEZER	48.3	45.3	36.3	59.5	48.6	57.5	58.6	43.0
ELECTRIC REFRIG, ANY TYPE	99.0	99.3	99.3	99.4	99.2	99.3	99.0	99.2
REFRIGERATOR - FREEZER	59.5	58.6	55.2	56.6	58.6	59.8	58.1	57.0
OTHER REFRIGERATOR	51.4	50.9	53.7	51.8	50.2	50.3	49.1	52.2
AUTOMATIC DISHWASHER	22.9	20.6	22.8	22.3	30.0	23.5	23.8	23.4
AUTOMATIC WASHER	57.8	50.9	45.7	52.2	58.1	60.2	62.9	50.9
OTHER WASHER	19.0	17.9	16.0	28.0	19.4	22.4	21.8	17.9
COMBINATION WASHER-DRYER	1.3	1.0	1.2	2.1	1.3	1.5	1.2	1.2
CLOTHES DRYER	51.3	43.0	38.2	58.2	58.3	59.8	63.6	45.3
WATER HEATER	35.9	33.2	40.5	73.3	85.3	73.2	48.4	46.6
CENTRAL AIR CONDITIONING	12.5	12.0	11.5	2.5	8.0	1.2	.7	10.4
WINDOW AIR COND. - ONE	26.4	20.2	18.5	9.9	14.7	5.8	3.4	18.3
WINDOW AIR COND. - 2 OR MORE	6.4	3.4	3.1	.9	2.3	.7	.4	3.3
DEHUMIDIFIER	22.4	21.8	18.0	18.4	21.6	17.1	7.7	19.4
BED BLANKET	16.9	12.3	13.7	18.5	17.7	12.7	11.2	14.5
ELECTRIC HOME HEATING	12.4	6.7	8.6	25.4	9.2	15.2	8.6	9.6
PLUG-IN SPACE HEATER	11.6	13.1	10.9	10.7	12.0	10.3	11.4	11.5
BUILT-IN SPACE HEATER	2.0	6.2	2.3	3.3	3.3	3.2	4.4	3.1
PLUG-IN HUMIDIFIER	20.0	16.2	23.3	24.4	20.4	20.1	13.6	21.0
POWER HUMIDIFIER ON FURNACE	23.3	21.5	22.0	13.7	24.3	14.5	11.6	21.6
BLACK & WHITE TELEVISION	46.1	43.3	45.2	37.3	45.3	44.6	44.2	44.8
COLOUR TELEVISION	78.4	79.5	75.3	78.7	77.3	83.8	77.8	77.1

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

SAMPLE CHARACTERISTICS - RURAL NON-FARM HOUSEHOLDS

Rural	Western	Niagara	Central	Georgian Bay	Eastern	North-Eastern	North-Western	Provinc	Total
Total Number of Rural Non-Farm Residential Households (As at Dec. 31, 1978)	57,850	56,500	53,900	71,200	111,450	67,550	17,000	435,4	
Number of Areas in Survey	7	9	4	13	13	10	5		
Number of Rural Non-Farm Residential Households Served by These Areas	57,850	56,500	53,900	71,200	111,450	67,550	17,000	435,4	
Per Cent Coverage	100%	100%	100%	100%	100%	100%	100%	100%	100%
Net Sample Size	4,344	4,842	2,749	6,984	7,767	5,680	2,351	34,	
Net Processable Returns:									
Total	3,201	3,621	2,031	5,324	5,749	3,772	1,601	25,	
As a Percentage of Non-Farm Residential Households	5.5%	6.4%	3.8%	7.5%	5.1%	5.6%	9.4%	5	
As a Percentage of Sample	73.7%	74.8%	73.9%	76.2%	74.0%	66.4%	68.0%	72	

REGION	WESTERN	NIAGARA	CENTRAL GEORGIAN BAY	EASTERN	NORTH- EASTERN	NORTH- WESTERN	PROVINCIAL	TOTAL
TOTAL NO. OF RES. HOUSEHOLDS (ESTIMATED)	57850	56500	53900	71200	111450	67550	17000	435450
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	79.2	81.9	94.1	92.5	91.5	92.0	86.3	89.0
MICROWAVE OVEN	6.2	6.3	8.2	5.7	4.6	4.2	4.1	5.6
PLUG-IN KETTLE	61.6	59.6	65.8	68.4	66.5	69.2	54.4	65.1
HOME FOOD FREEZER	74.2	76.0	67.7	73.7	74.8	67.1	70.4	72.4
ELECTRIC REFRIG, ANY TYPE	99.3	99.1	99.1	99.1	99.3	98.9	98.1	99.1
REFRIGERATOR - FREEZER	63.7	63.6	66.2	57.3	60.4	53.8	51.9	60.1
OTHER REFRIGERATOR	47.7	49.7	45.4	51.7	50.0	53.8	54.1	50.1
AUTOMATIC DISHWASHER	31.0	26.4	39.5	23.9	26.7	18.9	16.7	26.8
AUTOMATIC WASHER	66.1	59.1	67.8	50.1	56.0	53.0	51.6	57.6
OTHER WASHER	24.6	33.0	24.2	37.8	35.3	35.7	34.0	32.6
COMBINATION WASHER-DRYER	1.3	1.2	1.7	2.0	1.3	1.8	1.5	1.6
CLOTHES DRYER	67.3	64.3	72.6	66.5	71.6	64.3	60.6	67.8
WATER HEATER	64.1	64.6	73.0	88.0	84.6	72.0	79.5	76.2
CENTRAL AIR CONDITIONING	11.3	7.8	12.2	2.6	3.9	.9	.5	5.6
WINDOW AIR COND. - ONE	19.6	15.5	15.4	8.9	10.4	4.9	4.9	11.6
WINDOW AIR COND. - 2 OR MORE	3.7	2.3	2.0	.8	1.2	.2	.2	1.5
DEHUMIDIFIER	26.0	33.1	26.2	17.8	24.2	10.0	5.2	21.8
BED BLANKET	20.9	19.0	17.7	19.8	16.8	8.6	8.3	16.6
ELECTRIC HOME HEATING	19.6	9.3	18.7	35.0	23.5	17.7	16.5	21.3
PLUG-IN SPACE HEATER	10.8	12.0	11.1	9.9	10.3	8.1	9.6	10.2
BUILT-IN SPACE HEATER	3.6	3.0	3.6	3.5	3.0	2.6	3.4	3.2
PLUG-IN HUMIDIFIER	21.7	17.7	20.6	24.2	19.5	12.8	12.1	19.1
POWER HUMIDIFIER ON FURNACE	21.5	25.8	31.6	14.0	15.8	10.0	6.6	18.3
BLACK & WHITE TELEVISION	42.2	45.0	47.1	43.0	45.5	42.5	42.1	44.2
COLOUR TELEVISION	81.0	78.1	82.1	73.5	76.3	77.2	71.2	77.3

SAMPLE CHARACTERISTICS - RURAL FARM HOUSEHOLDS

<u>Region</u>	<u>Western</u>	<u>Niagara</u>	<u>Central</u>	<u>Georgian Bay</u>	<u>Eastern</u>	<u>North-Eastern</u>	<u>North-Western</u>	<u>Provin Tot</u>
Total Number of Farm Households	34,950	18,300	5,950	22,200	29,700	2,975	1,075	115,
Number of Areas Surveyed	7	9	4	13	13	10	4	
Number of Farm Households Served by These Areas	34,950	18,300	5,950	22,200	29,700	2,975	1,075	115,
Per Cent Coverage	100%	100%	100%	100%	100%	100%	100%	1
Net Sample Size	2,012	2,174	884	2,931	3,364	1,700	567	13,
Net Processable Returns:								
Total	1,446	1,543	609	2,033	2,263	1,090	400	9,
As a Percentage of Total Farm Households	4.1%	8.4%	10.2%	9.2%	7.6%	36.6%	37.2%	8
As a Percentage of Sample	71.9%	80.0%	68.9%	69.4%	67.3%	64.1%	70.5%	68

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APPLIANCE SATURATION STATISTICS - RURAL FARM CUSTOMERS

1978

REGION	WESTERN	NIAGARA	CENTRAL	GEORGIAN BAY	EASTERN	NORTH- EASTERN	NORTH- WESTERN	PROVINCIAL TOTAL
TOTAL NO. OF FARM HOUSEHOLDS (ESTIMATED)	34950	18300	5950	22200	29700	2975	1075	115150
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	84.9	81.4	96.4	92.4	89.2	91.3	85.1	87.6
MICROWAVE OVEN	6.5	5.4	9.7	5.2	3.2	2.5	2.0	5.2
PLUG-IN KETTLE	61.6	55.5	66.3	62.4	63.1	65.4	51.8	61.4
HOME FOOD FREEZER	88.3	87.6	84.9	89.2	86.4	87.4	88.2	87.7
ELECTRIC REFRIG, ANY TYPE	99.1	98.2	99.5	99.1	98.8	97.4	97.6	98.8
REFRIGERATOR - FREEZER	55.0	58.0	55.4	47.0	48.6	41.7	41.1	51.8
OTHER REFRIGERATOR	55.7	54.8	59.2	61.3	60.3	63.2	63.2	58.3
AUTOMATIC DISHWASHER	33.7	29.5	35.6	29.1	23.2	16.6	14.4	28.9
AUTOMATIC WASHER	61.7	53.2	51.4	48.6	45.7	44.6	34.4	52.5
OTHER WASHER	31.3	41.6	38.9	43.0	45.4	50.0	57.5	40.0
COMBINATION WASHER-DRYER	1.5	1.4	2.2	2.2	2.0	1.3	1.0	1.8
CLOTHES DRYER	74.3	65.6	67.4	69.5	63.1	68.5	53.6	68.4
WATER HEATER	82.4	80.1	95.7	92.8	90.0	87.7	84.8	86.9
CENTRAL AIR CONDITIONING	5.1	2.9	5.4	1.3	.6	.4	.1	2.7
WINDOW AIR COND. - ONE	14.1	12.2	9.0	5.1	6.4	3.0	3.2	9.4
WINDOW AIR COND. - 2 OR MORE	3.0	2.2	2.3	.3	.8	-	.1	1.7
DEHUMIDIFIER	14.2	13.9	11.8	7.8	6.4	5.2	4.7	10.5
BED BLANKET	28.5	25.6	26.6	23.0	19.8	15.0	9.5	24.1
ELECTRIC HOME HEATING	7.6	4.2	6.1	6.4	5.7	7.4	7.7	6.3
PLUG-IN SPACE HEATER	17.6	19.4	17.7	15.1	14.4	15.2	14.4	16.5
BUILT-IN SPACE HEATER	5.0	5.2	5.4	6.8	3.3	3.8	3.7	4.9
PLUG-IN HUMIDIFIER	23.6	19.6	18.9	23.9	18.2	10.1	10.2	20.9
POWER HUMIDIFIER ON FURNACE	21.8	20.1	20.7	12.7	15.0	8.1	4.9	17.4
BLACK & WHITE TELEVISION	44.7	49.6	45.8	48.5	47.6	47.6	43.1	47.1
COLOUR TELEVISION	75.8	67.7	72.2	63.5	67.8	59.7	62.2	69.4

M14

APPLIANCE SATURATION STATISTICS IN WESTERN REGION

1978

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM	MUNICIPAL*	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	34950	57850	242453	335253
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	84.9	79.2	82.4	82.1
MICROWAVE OVEN	6.5	6.2	4.5	5.0
PLUG-IN KETTLE	61.6	61.6	62.5	62.3
HOME FOOD FREEZER	88.3	74.2	48.3	56.9
ELECTRIC REFRIG, ANY TYPE	99.1	99.3	99.0	99.1
REFRIGERATOR - FREEZER	55.0	63.7	59.5	59.8
OTHER REFRIGERATOR	55.7	47.7	51.4	51.2
AUTOMATIC DISHWASHER	33.7	31.0	22.9	25.4
AUTOMATIC WASHER	61.7	66.1	57.8	59.6
OTHER WASHER	31.3	24.6	19.0	21.2
COMBINATION WASHER-DRYER	1.5	1.3	1.3	1.3
CLOTHES DRYER	74.3	67.3	51.3	56.4
WATER HEATER	82.4	64.1	35.9	45.6
CENTRAL AIR CONDITIONING	5.1	11.3	12.5	11.5
WINDOW AIR COND. - ONE	14.1	19.6	26.4	23.9
WINDOW AIR COND. - 2 OR MORE	3.0	3.7	6.4	5.6
DEHUMIDIFIER	14.2	26.0	22.4	22.2
BED BLANKET	28.5	20.9	16.9	18.8
ELECTRIC HOME HEATING	7.6	19.6	12.4	13.2
PLUG-IN SPACE HEATER	17.6	10.8	11.6	12.1
BUILT-IN SPACE HEATER	5.0	3.6	2.0	2.6
PLUG-IN HUMIDIFIER	23.6	21.7	20.0	20.7
POWER HUMIDIFIER ON FURNACE	21.8	21.5	23.3	22.8
BLACK & WHITE TELEVISION	44.7	42.2	46.1	45.3
COLOUR TELEVISION	75.8	81.0	78.4	78.6

*INCLUDING BULK-METERED APARTMENTS

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM	MUNICIPAL*	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	18300	56500	295450	370250
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	81.4	81.9	86.3	85.4
MICROWAVE OVEN	5.4	6.3	3.3	3.9
PLUG-IN KETTLE	55.5	59.6	63.2	62.3
HOME FOOD FREEZER	87.6	76.0	45.3	52.1
ELECTRIC REFRIG, ANY TYPE	98.2	99.1	99.3	99.2
REFRIGERATOR - FREEZER	58.0	63.6	58.6	59.3
OTHER REFRIGERATOR	54.8	49.7	50.9	50.9
AUTOMATIC DISHWASHER	29.5	26.4	20.6	21.9
AUTOMATIC WASHER	53.2	59.1	50.9	52.3
OTHER WASHER	41.6	33.0	17.9	21.4
COMBINATION WASHER-DRYER	1.4	1.2	1.0	1.1
CLOTHES DRYER	65.6	64.3	43.0	47.4
WATER HEATER	80.1	64.6	33.2	40.3
CENTRAL AIR CONDITIONING	2.9	7.8	12.0	10.9
WINDOW AIR COND. - ONE	12.2	15.5	20.2	19.1
WINDOW AIR COND. - 2 OR MORE	2.2	2.3	3.4	3.2
DEHUMIDIFIER	13.9	33.1	21.8	23.1
BED BLANKET	25.6	19.0	12.3	14.0
ELECTRIC HOME HEATING	4.2	9.3	6.7	6.9
PLUG-IN SPACE HEATER	19.4	12.0	13.1	13.2
BUILT-IN SPACE HEATER	5.2	3.0	6.2	5.7
PLUG-IN HUMIDIFIER	19.6	17.7	16.2	16.6
POWER HUMIDIFIER ON FURNACE	20.1	25.8	21.5	22.1
BLACK & WHITE TELEVISION	49.6	45.0	43.3	43.9
COLOUR TELEVISION	67.7	78.1	79.5	78.7

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM	MUNICIPAL*	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	5950	53900	865850	925700
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	96.4	94.1	88.8	89.2
MICROWAVE OVEN	9.7	8.2	4.0	4.3
PLUG-IN KETTLE	66.3	65.8	59.4	59.8
HOME FOOD FREEZER	84.9	67.7	36.3	38.4
ELECTRIC REFRIG, ANY TYPE	99.5	99.1	99.3	99.2
REFRIGERATOR - FREEZER	55.4	66.2	55.2	55.8
OTHER REFRIGERATOR	59.2	45.4	53.7	53.2
AUTOMATIC DISHWASHER	35.6	39.5	22.8	23.9
AUTOMATIC WASHER	51.4	67.8	45.7	47.0
OTHER WASHER	38.9	24.2	16.0	16.6
COMBINATION WASHER-DRYER	2.2	1.7	1.2	1.2
CLOTHES DRYER	67.4	72.6	38.2	40.4
WATER HEATER	95.7	73.0	40.5	42.7
CENTRAL AIR CONDITIONING,	5.4	12.2	11.5	11.5
WINDOW AIR COND. - ONE	9.0	15.4	18.5	18.3
WINDOW AIR COND. - 2 OR MORE	2.3	2.0	3.1	3.0
DEHUMIDIFIER	11.8	26.2	18.0	18.4
BED BLANKET	26.6	17.7	13.7	14.1
ELECTRIC HOME HEATING	6.1	18.7	8.6	9.2
PLUG-IN SPACE HEATER	17.7	11.1	10.9	11.0
BUILT-IN SPACE HEATER	5.4	3.6	2.3	2.4
PLUG-IN HUMIDIFIER	18.9	20.6	23.3	23.2
POWER HUMIDIFIER ON FURNACE	20.7	31.6	22.0	22.6
BLACK & WHITE TELEVISION	45.8	47.1	45.2	45.4
COLOUR TELEVISION	72.2	82.1	75.3	75.7

*INCLUDING BULK-METERED APARTMENTS

M17 APPLIANCE SATURATION STATISTICS IN GEORGIAN BAY REGION 1978

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM	MUNICIPAL*	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	22200	71200	54300	147700
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	92.4	92.5	92.6	92.5
MICROWAVE OVEN	5.2	5.7	5.1	5.4
PLUG-IN KETTLE	62.4	68.4	70.6	68.3
HOME FOOD FREEZER	89.2	73.7	59.5	70.8
ELECTRIC REFRIG, ANY TYPE	99.1	99.1	99.4	99.2
REFRIGERATOR - FREEZER	47.0	57.3	56.6	55.5
OTHER REFRIGERATOR	61.3	51.7	51.8	53.2
AUTOMATIC DISHWASHER	29.1	23.9	22.3	24.1
AUTOMATIC WASHER	48.6	50.1	52.2	50.6
OTHER WASHER	43.0	37.8	28.0	35.0
COMBINATION WASHER-DRYER	2.2	2.0	2.1	2.1
CLOTHES DRYER	69.5	66.5	58.2	63.9
WATER HEATER	92.8	88.0	73.3	83.3
CENTRAL AIR CONDITIONING	1.3	2.6	2.5	2.4
WINDOW AIR COND. - ONE	5.1	8.9	9.9	8.7
WINDOW AIR COND. - 2 OR MORE	.3	.8	.9	.8
DEHUMIDIFIER	7.8	17.8	18.4	16.5
BED BLANKET	23.0	19.8	18.5	19.8
ELECTRIC HOME HEATING	6.4	35.0	25.4	27.2
PLUG-IN SPACE HEATER	15.1	9.9	10.7	11.0
BUILT-IN SPACE HEATER	6.8	3.5	3.3	3.9
PLUG-IN HUMIDIFIER	23.9	24.2	24.4	24.2
POWER HUMIDIFIER ON FURNACE	12.7	14.0	13.7	13.7
BLACK & WHITE TELEVISION	48.5	43.0	37.3	41.7
COLOUR TELEVISION	63.5	73.5	78.7	73.9

*INCLUDING BULK-METERED APARTMENTS

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM	MUNICIPAL*	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	29700	111450	218900	360050
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	89.2	91.5	95.4	93.7
MICROWAVE OVEN	3.2	4.6	4.5	4.4
PLUG-IN KETTLE	63.1	66.5	68.0	67.1
HOME FOOD FREEZER	86.4	74.8	48.6	59.9
ELECTRIC REFRIG, ANY TYPE	98.8	99.3	99.2	99.2
REFRIGERATOR - FREEZER	48.6	60.4	58.6	58.3
OTHER REFRIGERATOR	60.3	50.0	50.2	51.0
AUTOMATIC DISHWASHER	23.2	26.7	30.0	28.4
AUTOMATIC WASHER	45.7	56.0	58.1	56.4
OTHER WASHER	45.4	35.3	19.4	26.4
COMBINATION WASHER-DRYER	2.0	1.3	1.3	1.4
CLOTHES DRYER	63.1	71.6	58.3	62.8
WATER HEATER	90.0	84.6	85.3	85.5
CENTRAL AIR CONDITIONING	.6	3.9	8.0	6.1
WINDOW AIR COND. - ONE	6.4	10.4	14.7	12.7
WINDOW AIR COND. - 2 OR MORE	.8	1.2	2.3	1.8
DEHUMIDIFIER	6.4	24.2	21.6	21.1
BED BLANKET	19.8	16.8	17.7	17.6
ELECTRIC HOME HEATING	5.7	23.5	9.2	13.4
PLUG-IN SPACE HEATER	14.4	10.3	12.0	11.7
BUILT-IN SPACE HEATER	3.3	3.0	3.3	3.2
PLUG-IN HUMIDIFIER	18.2	19.5	20.4	19.9
POWER HUMIDIFIER ON FURNACE	15.0	15.8	24.3	20.9
BLACK & WHITE TELEVISION	47.6	45.5	45.3	45.6
COLOUR TELEVISION	67.8	76.3	77.3	76.2

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

M19 APPLIANCE SATURATION STATISTICS IN NORTHEASTERN REGION 1978

LOCATION	RURAL FARM	RURAL NON-FARM	MUNICIPAL *	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	2975	67550	67130	137655
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	91.3	92.0	95.2	93.5
MICROWAVE OVEN	2.5	4.2	6.0	5.0
PLUG-IN KETTLE	65.4	69.2	70.8	69.9
HOME FOOD FREEZER	87.4	67.1	57.5	62.8
ELECTRIC REFRIG, ANY TYPE	97.4	98.9	99.3	99.1
REFRIGERATOR - FREEZER	41.7	53.8	59.8	56.5
OTHER REFRIGERATOR	63.2	53.8	50.3	52.3
AUTOMATIC DISHWASHER	16.6	18.9	23.5	21.1
AUTOMATIC WASHER	44.6	53.0	60.2	56.3
OTHER WASHER	50.0	35.7	22.4	29.6
COMBINATION WASHER-DRYER	1.3	1.8	1.5	1.6
CLOTHES DRYER	68.5	64.3	59.8	62.2
WATER HEATER	87.7	72.0	73.2	73.0
CENTRAL AIR CONDITIONING	.4	.9	1.2	1.1
WINDOW AIR COND. - ONE	3.0	4.9	5.8	5.3
WINDOW AIR COND. - 2 OR MORE	-	.2	.7	.4
DEHUMIDIFIER	5.2	10.0	17.1	13.4
BED BLANKET	15.0	8.6	12.7	10.8
ELECTRIC HOME HEATING	7.4	17.7	15.2	16.2
PLUG-IN SPACE HEATER	15.2	8.1	10.3	9.3
BUILT-IN SPACE HEATER	3.8	2.6	3.2	2.9
PLUG-IN HUMIDIFIER	10.1	12.8	20.1	16.3
POWER HUMIDIFIER ON FURNACE	8.1	10.0	14.5	12.2
BLACK & WHITE TELEVISION	47.6	42.5	44.6	43.6
COLOUR TELEVISION	59.7	77.2	83.8	80.0

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

M20 APPLIANCE SATURATION STATISTICS IN NORTHWESTERN REGION

1978

LOCATION	RURAL FARM	RURAL NON-FARM	MUNICIPAL *	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	1075	17000	43350	61425
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	85.1	86.3	96.9	93.8
MICROWAVE OVEN	2.0	4.1	4.8	4.6
PLUG-IN KETTLE	51.8	54.4	64.8	61.7
HOME FOOD FREEZER	88.2	70.4	58.6	62.4
ELECTRIC REFRIG, ANY TYPE	97.6	98.1	99.0	98.7
REFRIGERATOR - FREEZER	41.1	51.9	58.1	56.1
OTHER REFRIGERATOR	63.2	54.1	49.1	50.7
AUTOMATIC DISHWASHER	14.4	16.7	23.8	21.6
AUTOMATIC WASHER	34.4	51.6	62.9	59.3
OTHER WASHER	57.5	34.0	21.8	25.8
COMBINATION WASHER-DRYER	1.0	1.5	1.2	1.3
CLOTHES DRYER	53.6	60.6	63.6	62.6
WATER HEATER	84.8	79.5	48.4	57.6
CENTRAL AIR CONDITIONING	.1	.5	.7	.6
WINDOW AIR COND. - ONE	3.2	4.9	3.4	3.8
WINDOW AIR COND. - 2 OR MORE	.1	.2	.4	.4
DEHUMIDIFIER	4.7	5.2	7.7	7.0
BED BLANKET	9.5	8.3	11.2	10.3
ELECTRIC HOME HEATING	7.7	16.5	8.6	10.8
PLUG-IN SPACE HEATER	14.4	9.6	11.4	11.0
BUILT-IN SPACE HEATER	3.7	3.4	4.4	4.1
PLUG-IN HUMIDIFIER	10.2	12.1	13.6	13.1
POWER HUMIDIFIER ON FURNACE	4.9	6.6	11.6	10.1
BLACK & WHITE TELEVISION	43.1	42.1	44.2	43.6
COLOUR TELEVISION	62.2	71.2	77.8	75.7

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

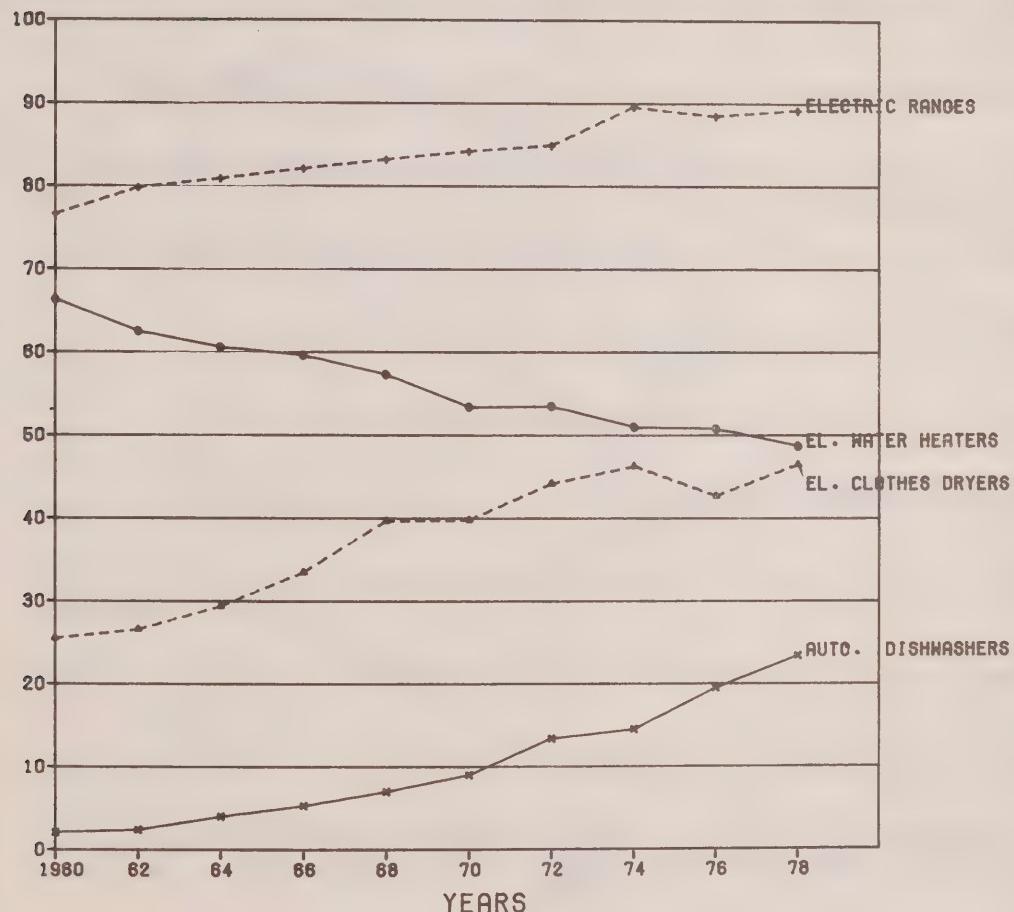
TRENDS IN THE OWNERSHIP OF SELECTED APPLIANCES

SECTION IV

FIGURE 1

TRENDS IN OWNERSHIP OF SELECTED APPLIANCES 1960-78
FOR MUNICIPALITIES IN PROVINCE OF ONTARIO

PER CENT
SATURATION

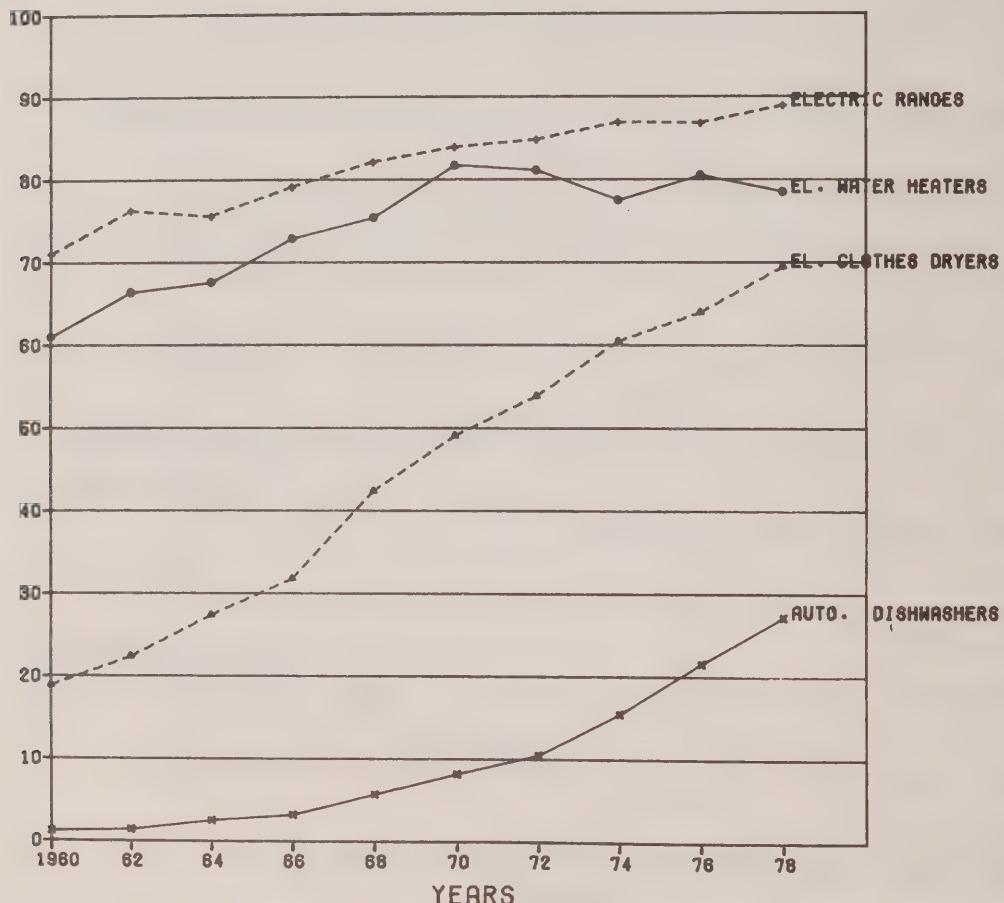


SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976, 1978

FIGURE 2

TRENDS IN OWNERSHIP OF SELECTED APPLIANCES 1960-78
FOR RURAL AREAS IN PROVINCE OF ONTARIO

PER CENT
SATURATION

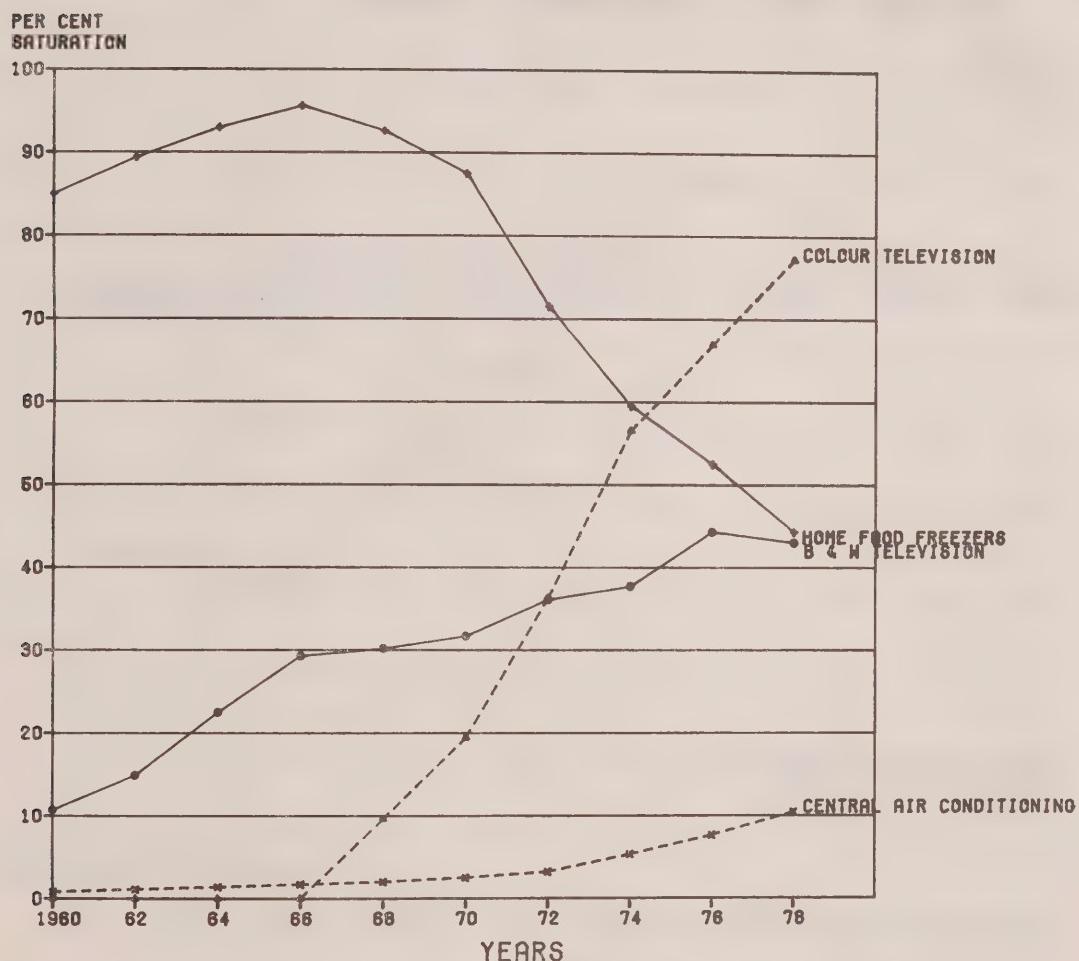


SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976, 1978

FIGURE 3

TRENDS IN OWNERSHIP OF SELECTED APPLIANCES 1960-78

FOR MUNICIPALITIES IN PROVINCE OF ONTARIO



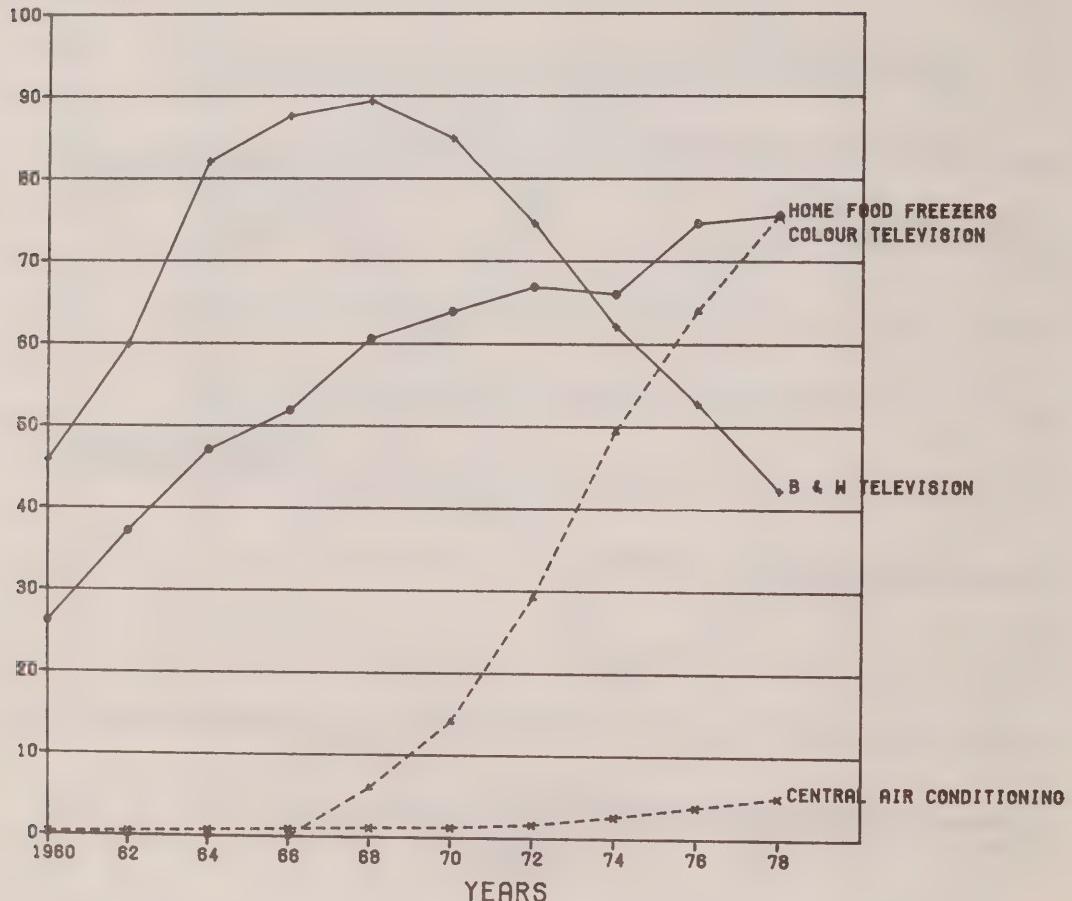
SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976, 1978

FIGURE 4

TRENDS IN OWNERSHIP OF SELECTED APPLIANCES 1960-78

FOR RURAL AREAS IN PROVINCE OF ONTARIO

PER CENT
SATURATION



SOURCE: SURVEYS IN 1960, 1962, 1964, 1966, 1968, 1970, 1972, 1974, 1976, 1978

CROSS-TABULATIONS OF SELECTED APPLIANCES

SECTION V

ONTARIO HOMES, BY TYPE OF HOME HEATING FUEL,
SHOWING THE SATURATION OF SELECTED APPLIANCES AND FACILITIES

M22	MUNICIPAL			1978		
	HOME HEATING	FUEL	ELECTRICITY	GAS	OIL	OTHER
	SELECTED APPLIANCES & FACILITIES		PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ALL TYPES		97.0	78.2	93.5	90.4	
GAS RANGE, ALL TYPES		3.6	24.7	7.2	9.6	
ELECTRIC CLOTHES DRYER		61.1	57.5	63.7	10.2	
GAS CLOTHES DRYER		.8	14.2	1.7	1.8	
ELECTRIC WATER HEATER		92.8	28.6	83.9	20.9	
GAS WATER HEATER		2.9	69.3	8.2	9.0	
FURNACE WITH MOTORS		12.3	91.7	94.6	28.7	
STOVE OR SPACE HEATER		.5	6.9	3.8	6.8	
EL. BASEBOARD OR CABLE		85.9	.3	.2	1.4	
SUPPLEMENTARY EL. HEATER		9.0	14.3	17.0	8.1	
SUPPLEMENTARY WOODSTOVE		10.1	4.3	7.4	4.0	
ELECTRIC BLANKET		16.3	16.6	18.4	10.0	
EL. HUMIDIFIER, ALL TYPES		34.1	46.5	42.2	29.2	

M21	RURAL NON-FARM					
	HOME HEATING	FUEL	ELECTRICITY	GAS	OIL	OTHER
	SELECTED APPLIANCES & FACILITIES		PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ALL TYPES		97.4	69.0	91.8	78.7	
GAS RANGE, ALL TYPES		2.9	34.6	8.5	15.5	
ELECTRIC CLOTHES DRYER		77.1	56.8	70.3	43.6	
GAS CLOTHES DRYER		.7	17.8	1.3	3.2	
ELECTRIC WATER HEATER		98.1	29.7	89.0	66.2	
GAS WATER HEATER		.9	67.5	2.8	8.3	
FURNACE WITH MOTORS		12.9	85.7	90.4	36.3	
STOVE OR SPACE HEATER		.6	13.3	8.2	48.0	
EL. BASEBOARD OR CABLE		86.1	.3	.3	.8	
SUPPLEMENTARY EL. HEATER		8.9	14.3	15.0	15.9	
SUPPLEMENTARY WOODSTOVE		26.7	11.2	21.1	43.2	
ELECTRIC BLANKET		17.9	17.2	16.4	10.9	
EL. HUMIDIFIER, ALL TYPES		34.1	40.8	35.9	16.8	

ONTARIO HOMES, BY TYPE OF FUEL USED FOR WATER HEATING
SHOWING THE SATURATION OF SELECTED APPLIANCES AND FACILITIES

M24	MUNICIPAL			1978			
	WATER HEATING		FUEL	ELECTRICITY	GAS	OIL	OTHER
	SELECTED APPLIANCES & FACILITIES	PERCENT					
ELECTRIC RANGE, ALL TYPES	93.2	76.0		91.6		92.7	
GAS RANGE, ALL TYPES	7.6	27.2		9.2		7.2	
ELECTRIC DISHWASHER	25.4	27.7		25.5		5.7	
ELECTRIC CLOTHES DRYER	64.2	56.0		48.2		5.2	
GAS CLOTHES DRYER	2.7	15.3		1.7		.6	
HOME HEATED BY ELECTRICITY	20.3	1.2		1.4		7.3	
HOME HEATED BY GAS	19.3	86.4		6.9		8.1	
HOME HEATED BY OIL	57.9	10.4		89.9		12.0	
HOME HEATED BY OTHER FUELS	.8	.3		.1		1.7	
AUTOMATIC WASHING MACHINE	61.0	68.4		-		-	
CONVENTIONAL WASHER	23.6	19.5		67.4		15.9	

M23	RURAL NON-FARM						
	WATER HEATING		FUEL	ELECTRICITY	GAS	OIL	OTHER
	SELECTED APPLIANCES & FACILITIES	PERCENT					
ELECTRIC RANGE, ALL TYPES	92.9	67.0		89.6		69.9	
GAS RANGE, ALL TYPES	7.6	36.7		9.0		22.4	
ELECTRIC DISHWASHER	24.2	28.3		34.3		4.1	
ELECTRIC CLOTHES DRYER	72.4	56.4		68.2		18.5	
GAS CLOTHES DRYER	1.4	20.9		1.6		.7	
HOME HEATED BY ELECTRICITY	26.9	1.4		.6		5.5	
HOME HEATED BY GAS	6.4	84.5		1.9		12.2	
HOME HEATED BY OIL	62.9	11.4		95.2		47.5	
HOME HEATED BY OTHER FUELS	3.2	1.5		1.9		22.9	
AUTOMATIC WASHING MACHINE	56.9	64.0		-		-	
CONVENTIONAL WASHER	34.1	25.8		83.9		58.3	

ONTARIO HOMES, BY TYPE OF FUEL USED FOR COOKING,
SHOWING THE SATURATION OF SELECTED APPLIANCES AND FACILITIES

M26	MUNICIPAL			1978
	FUEL	USED FOR COOKING	ELECTRICITY	
	SELECTED APPLIANCES & FACILITIES	PERCENT	PERCENT	
MICROWAVE OVEN	4.9	3.2	5.1	
ELECTRIC REFRIGERATOR	99.2	98.3	93.4	
SUPPLEMENTARY ELECTRIC HEATING	14.5	12.7	13.1	
WINDOW AIR CONDITIONER	19.9	21.3	5.1	
ELECTRIC DEHUMIDIFIER	22.7	14.5	8.8	
ELECTRIC HUMIDIFIER	43.4	32.1	26.3	
AUTOMATIC WASHER	58.8	49.0	29.9	
CONVENTIONAL WASHER	21.6	32.4	32.9	
COMBINATION WASHER-DRYER	1.3	2.1	1.5	
ELECTRIC CLOTHES DRYER	59.3	31.3	20.4	
ELECTRIC WATER HEATER	62.5	32.0	49.6	
OIL HOME HEATING	43.3	20.6	43.8	

M25	RURAL NON-FARM			
	FUEL	USED FOR COOKING	ELECTRICITY	
	SELECTED APPLIANCES & FACILITIES	PERCENT	PERCENT	
MICROWAVE OVEN	5.5	4.0	3.1	
ELECTRIC REFRIGERATOR	99.2	98.4	92.4	
SUPPLEMENTARY ELECTRIC HEATING	13.7	12.7	13.3	
WINDOW AIR CONDITIONER	12.0	12.7	3.1	
ELECTRIC DEHUMIDIFIER	21.5	11.3	1.5	
ELECTRIC HUMIDIFIER	37.0	25.9	5.6	
AUTOMATIC WASHER	56.7	37.9	9.2	
CONVENTIONAL WASHER	33.9	45.3	50.5	
COMBINATION WASHER-DRYER	1.5	2.8	.5	
ELECTRIC CLOTHES DRYER	70.7	37.6	18.4	
ELECTRIC WATER HEATER	83.9	49.3	45.9	
OIL HOME HEATING	58.6	39.6	45.4	

ONTARIO HOMES, BY TYPE OF TENURE
SHOWING THE SATURATION OF SELECTED APPLIANCES AND FACILITIES

M28

MUNICIPAL

1978

SELECTED APPLIANCES & FACILITIES	TENURE	OWNER OCCUPIED	TENANT OCCUPIED
		PERCENT	PERCENT
ELECTRIC RANGE, ALL TYPES		86.8	90.6
GAS RANGE, ALL TYPES		14.9	9.9
HOME FOOD FREEZER		62.0	28.0
REFRIGERATOR-FREEZER		65.3	41.7
CONVENTIONAL REFRIGERATOR		46.8	61.9
ELECTRIC DISHWASHER		29.3	9.0
AUTOMATIC WASHER		68.8	17.4
CONVENTIONAL WASHER		24.0	19.6
COMBINATION WASHER-DRYER		1.3	1.7
ELECTRIC CLOTHES DRYER		66.2	18.7
GAS CLOTHES DRYER		7.9	1.7
ELECTRIC WATER HEATER		61.9	47.1
GAS WATER HEATER		34.6	21.7

M27

RURAL NON-FARM

SELECTED APPLIANCES & FACILITIES	TENURE	OWNER OCCUPIED	TENANT OCCUPIED
		PERCENT	PERCENT
ELECTRIC RANGE, ALL TYPES		88.9	85.8
GAS RANGE, ALL TYPES		11.8	14.2
HOME FOOD FREEZER		75.4	61.4
REFRIGERATOR-FREEZER		59.4	52.3
CONVENTIONAL REFRIGERATOR		50.8	54.5
ELECTRIC DISHWASHER		25.9	14.3
AUTOMATIC WASHER		56.2	40.6
CONVENTIONAL WASHER		35.2	36.5
COMBINATION WASHER-DRYER		1.6	1.6
ELECTRIC CLOTHES DRYER		68.6	52.5
GAS CLOTHES DRYER		4.3	3.2
ELECTRIC WATER HEATER		80.3	75.8
GAS WATER HEATER		13.6	15.0

ONTARIO HOMES, BY AGE OF DWELLING,
SHOWING THE SATURATION OF SELECTED APPLIANCES AND FACILITIES

M30

MUNICIPAL

SELECTED APPLIANCES & FACILITIES	SINGLE FAMILY DWELLING UNITS BUILT	PERCENT PERCENT PERCENT PERCENT PERCENT PERCENT					
		BEFORE 1956	1956- 1960	1961- 1965	1966- 1970	1971- 1975	AFTER 1975
ELECTRIC RANGE, ALL TYPES		81.8	91.0	91.2	92.7	94.2	96.4
GAS RANGE, ALL TYPES		19.5	11.7	10.9	9.7	7.8	6.0
WATER HEATED BY ELECTRICITY		67.6	67.9	56.3	55.5	50.1	49.6
WATER HEATED BY GAS		29.2	29.1	41.2	41.3	46.3	48.2
HOME HEATED BY ELECTRICITY		4.2	4.2	10.7	21.7	27.5	31.5
HOME HEATED BY GAS		39.3	36.5	49.6	49.5	52.7	53.8
HOME HEATED BY OIL		54.7	57.7	38.4	27.6	18.5	12.8
HOME HEATED BY OTHER FUELS		.8	.7	.5	.5	.4	.9
CENTRAL AIR CONDITIONING		4.1	11.9	14.7	14.6	16.2	13.7

M29

RURAL NON-FARM

SELECTED APPLIANCES & FACILITIES	SINGLE FAMILY DWELLING UNITS BUILT	PERCENT PERCENT PERCENT PERCENT PERCENT PERCENT					
		BEFORE 1956	1956- 1960	1961- 1965	1966- 1970	1971- 1975	AFTER 1975
ELECTRIC RANGE, ALL TYPES		83.6	89.1	90.2	92.9	95.2	95.9
GAS RANGE, ALL TYPES		16.5	12.0	10.6	8.0	6.6	5.6
WATER HEATED BY ELECTRICITY		78.7	80.5	82.3	81.1	80.0	84.1
WATER HEATED BY GAS		14.6	13.0	13.7	12.7	14.3	12.0
HOME HEATED BY ELECTRICITY		8.5	8.2	22.1	32.1	37.5	47.9
HOME HEATED BY GAS		19.6	16.8	17.1	14.3	15.9	13.7
HOME HEATED BY OIL		67.1	71.0	57.4	50.7	43.4	31.8
HOME HEATED BY OTHER FUELS		4.1	3.1	3.0	2.4	2.9	6.0
CENTRAL AIR CONDITIONING		1.6	4.0	4.7	6.5	7.3	7.9

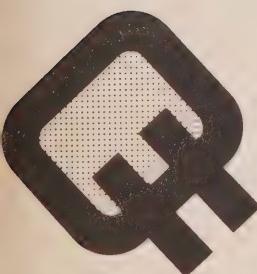


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Information
Marketing



energy application survey 1980



distribution & marketing branch

The following report contains detailed analyses of appliance ownership in Ontario homes obtained from the eleventh Energy Application Survey.

This survey, conducted during January and February, 1981, is the result of the efforts of several Hydro personnel and, in particular, the cooperation of the participating Municipal Utilities.

August, 1981

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GENERAL

SECTION I

NEW QUESTIONS IN 1980

A copy of the 1980 survey form is shown on page 9 . Several new questions were included to determine recent conversions of space and water heating fuels; responses to these questions were not considered reliable enough to report however. The following are the percentage of Ontario households reporting selected appliances asked about for the first time in this year's survey:

1. Counter-top broiler (toaster) ovens: 13% provincially,
9% on farms.
2. Wood stoves: 6% provincially; 20% in rural areas and
3% in municipalities.
3. Car heaters: 21% car block heaters and 3.3% in-car
heaters.
4. Canadian Home Insulation Program: 20% have participated
since 1978.

SPACE & WATER HEATING IN 1980

Tables M5 and M9 show the following provincial results: 45% of homes use gas for space heating, 33% use oil and 13% use electricity. Water heating is primarily by electricity (50%) and gas (37%).

Results for different classifications of customers are shown in tables M6, M9, M10, M12 and M13. On farms only, oil home heating has increased slightly since 1978, with a corresponding drop in electric home heating. The use of oil home heating has decreased about 10% since 1978 and, except in Georgian Bay municipalities, the saturation of electric home heating has increased; notably an 8% increase in Eastern Region (see Tables M14 through M20 for regional results).

The use of gas for water and space heating has increased in municipalities since 1978, whereas the saturation of electric water heaters has decreased in most municipalities, but increased in rural areas and in municipalities in Northwestern region. Saturations of gas ranges and of oil water heaters are down slightly (1-2%).

Tables M6 and M9 show the different usages of heating fuels by location of customer as summarized on the next page.

<u>Heating</u>	<u>Class</u>	<u>Gas</u> %	<u>Oil</u> %	<u>Electric</u> %	<u>Wood/Coal</u> %	<u>Don't Know</u> %
Space	Farm	12	74	5	8	-
	Rural	22	50	23	4	0.3
	Municip.	50	28	12	1	8.3
Water	Farm	7	1	89	1	0.1
	Rural	16	2	80	1	0.5
	Municip.	37	2	43	1	12.6

The "don't know" responses to the above questions are primarily due to apartment dwellers in municipalities (Table M9).

Rural non-farm customers with electric or oil space heating have about three times as many wood stoves as do municipal ones (Table M21 and M22). 96.2% of rural customers using oil for water heating also use oil for space heating compared to 90% of municipal customers (Table M23 & M24).

OTHER ELECTRIC APPLIANCES

1980 Results

Almost 100% of provincial households have at least one electric refrigerator (75% have reported 2 or 3 door combination refrigerator-freezers) and over 91% have an electric range (Table M5 and Figures 1 and 2). There is about 50% ownership of home food freezers, electric clothes dryers and electric water heaters.

The saturations of some other large energy users are: automatic dishwashers, 30%; dehumidifiers, 22%; central air-conditioning, 12%; colour television, 83%; and microwave ovens, 8.5%.

1978 Versus 1980

- (a) The percentages owning electric ranges, electric refrigerators of any type, central and window air conditioning are up slightly; that of home food freezers is about the same (Table M5; Figures 1 through 4).
- (b) The saturation of microwave ovens has almost doubled (from 4.5% to 8%). The ownership of colour television is up 5% while ownership of black and white television is down by 8%.

- (c) The saturation of automatic dishwashers has increased except for farm customers in Northwestern region.
- (d) There are increased concentrations of built-in and plug-in electric space heaters, plug-in humidifiers and electric blankets.
- (e) Saturations of automatic washers, electric clothes dryers, dehumidifiers and power humidifiers on the furnace have increased generally, except for municipal customers in Eastern region, who exhibit opposite trends.
- (f) The percentage of refrigerator-freezers is up 18% with other types down 6.8%. The saturation of washers other than automatic is also down.
- (g) At each level of annual energy use (see Tables M7 and M8), but especially at higher ones, and for all customers, saturations have greatly increased for: self-cleaning ranges, microwave ovens, and supplementary space heaters. Increased ownership of home food freezers, automatic dishwashers and washers, electric clothes dryers and refrigerator-freezers, especially frost-free, are reflected at all levels of annual energy use.
- (h) The saturation of conventional washers is down at all levels of annual energy usage; municipal customers also show decreased use of conventional refrigerators and electric water heating while rural customers use fewer "other ranges".
- (i) Regional restructuring has decreased the number of customers in Georgian Bay and increased the number in Central Region. This may account for some unique differences in the latter region: e.g. farm customers show decreased use of central air conditioning and rural non-farm customers show decreased use of automatic washers and dishwashers and power humidifiers on the furnace, with increased use of "other washers".

COMPARISON OF RURAL AND MUNICIPAL CUSTOMERS

Tenants

As shown in Tables M27 and M28, 79% of rural tenants live in single-family homes, whereas 74% of municipal tenants live in apartments. Thus, rural tenants compared to municipal tenants own more:

- i) home food freezers (67% vs 31%);
- ii) automatic washers (50% vs 18%);
- iii) clothes dryers (59% vs 19%);
- and iv) automatic dishwashers (20% vs 13%).

Age of Dwelling (Single Family Homes Only)

Newer homes are more likely to have electric ranges and central air conditioning (Tables M29 and M30).

In municipalities, older homes use oil or gas for space heating and electricity for water heating. Newer homes, especially those built after 1975, use more gas (58%) or electricity (29%) for space heating and 52% use gas for water heating.

Older rural dwellings have oil space heating (64%) and some gas (22%); newer homes tend to be electrically heated (homes built after 1975 use 44% electric, 15% gas and 32% oil). Water is usually heated electrically, especially in newer homes (85% in those built after 1975).

HISTORICAL TRENDS

Figures 1 through 4 show the trends in selected appliances, for rural and municipal customers separately, from 1960 to 1980.

Electric ranges are used in 9 out of every 10 Ontario households; the use of automatic dishwashers and electric clothes dryers is increasing steadily.

The saturation of colour televisions increases each year while that of black & white decreases.

The proportions of households with central air conditioning and home food freezers are increasing mainly in municipalities (the saturation of home food freezers is much higher in rural areas).

The use of electric water heating is decreasing in municipalities but remains unchanged in rural locations.

CONCLUSIONS

As in previous surveys, the demand for electrical appliances which contribute to the amenities in life is continuing to increase. These include: microwave ovens, colour televisions, air-conditioning, dishwashers, automatic washers and clothes dryers.

Gas is now the predominant method for home heating (45%) and electricity for water heating (50%). Since 1978, the use of gas has increased for both space and water heating, that of oil has decreased. The use of electricity for space heating has increased only very slightly; its use for water heating has decreased.

RECOMMENDATIONS

Several questions could be redesigned in order to best estimate appliance usage. These would include: the questions about: conversions, the use of more than one fuel in the central furnace, the ownership of more than one range and/or refrigerator, amount of insulation and whether a finished basement is a room. The saturation of convection ovens might be measured as well.

SAMPLE OF 1980 SURVEY FORM90011 (front - white)
rev. 80-08

Dear Customer:

The information requested on the questionnaire will help us plan for your future electricity requirements. You can assist us by answering a few questions.

Upon completion simply detach and mail the questionnaire portion - no stamp or signature is required.

Please do it now while you are thinking about it!

Thank you for your cooperation.

your hydro

energy application survey



please mark X to those appliances
you own or use in your dwelling

▼please detach here▼

if you live in an apartment building,
please mark this form for your own unit only.

22 your kitchen

- electric range with
- continuous clean
- self-cleaning
- no built-in cleaning features
- gas stove or range, any type
- other cooking stove or range
(describe) _____

- without cooking stove or range
- Number of refrigerators in use

- A 2 or 3-door combination refrigerator-freezer
- B other electric refrigerator
- C yes no
- D yes no

- A automatic electric dishwasher
- B home food deep' freezer
- C microwave oven
- D counter-top broiler oven

- 40 your own laundry equipment
(Do not include coin-operated or any other laundry equipment used outside your home.)
- 5 automatic washer
- 6 other electric washer
(wringing, spin-dry, etc.)
- 7 combination washer-dryer (one unit)
- 8 electric clothes dryer
- 9 gas clothes dryer

number in use

44 fuel used in your water heater

- electricity gas oil
- other or none don't know

45 if you have a swimming pool heater, is it

- electric oil or gas
- total solar solar and electric

46 fuel used in your central furnace

- oil gas electricity
- wood coal solar don't know

47 if you have space heater/stove, check below number in use

- A oil
- B gas
- C wood

D if electric check type

- D plug-in baseboard(s)
- E built-in baseboard(s)
- F ceiling cable
- G heat pump

59 other heating equipment

- 1 wood or gas fireplace
- 2 other (describe) _____

60 Have you participated in the Canadian Home Insulation Program (CHIP)?

- 1 yes no

61 Since January 1, 1979, have you

- 1 added insulation to the attic?

- 2 added solar heating equipment?

changed your method of space heating?
from oil gas electric otherchanged your method of water heating?
from oil gas electric other

67 supplementary equipment

in addition do you use number in use

- A central air conditioning
- B electronic air cleaner
- C electric power humidifier on furnace
- D electric blanket
- E window air conditioner
- F humidifier (plug-in)
- G dehumidifier (plug-in)

78 other electric appliances

- A black and white television
- B colour television
- C car block heater
- D in-car heater
- E swimming pool filter
- F electric sauna

88 do you live in a

- 1 single-family house (detached or attached)
- 2 apartment or flat (including duplex or triplex, etc.)
- 3 mobile home
- 4 other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>

1966-70 1971-75 After 1975

7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
----------------------------	----------------------------	----------------------------

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms)

92 number of persons living your household?

METHODOLOGY

Sampling:

The results of this survey are based on 60,299 processable responses to 133,996 questionnaires mailed to residential and farm customers. The sampling method used was a two-stage stratified technique. The population was stratified by size of municipality or area and then systematic sampling from customer billing records using a random start point was used to obtain samples proportional to the population of the strata.

The response rate of 45% of questionnaires mailed is down 20% from that in 1978 because the usual follow-up mailing was not done in this survey. However, the response is 2.1% of the total households in the province (about 2.9 million), down only 0.6% as compared to 1978. About twice as many forms were sent to bulk-metered apartments as in past years; thus, slightly more of total households were included in the sample, helping to overcome an 11% reduction in the response rate in this subsample.

In 1980 more utilities participated than in 1978 but several of the larger utilities that participated in 1978 are not in the current survey. Also, primarily due to restructuring, the populations of rural class customers is down.

Processing:

Appendix A shows the work flow of the survey through the organization. Extensive reliance upon computer storage and programming was necessary.

A measurement of both non-response bias and bias resulting from omission of the follow-up was made by comparing results from successive batches of returns (Appendix B). A negligible difference was found between answers of earlier and later respondents indicating a likelihood that the sample is representative of the population.

As in 1976 and 1978, a sample of households from bulk-metered apartment buildings in several municipalities was included. In this survey however, superintendents of the apartment buildings were sent a modified form asking for more information on the building (see Appendix C). This was done to improve the information on bulk-metered apartments in the province.

Results:

Statistics from tables with the prefix 'M' are based on survey estimates of September 1980, and Sample Characteristics (pages 22,24,26) are based on actual year-end 1980 figures.

A subsample of the municipal and rural non-farm customers (excluding farms and bulk-metered apartments) were asked a few questions additional to the main form (Appendix D). A subsequent report will provide more detailed analyses of this special sample.

SAMPLE AND RESPONSE - 1980

Class of Customer	Municipal		Retail		Total * Province
	Singly-Metered Households	Bulk-Metered Apartments	Non-Farm	Rural Farm	
Total Residential Households as of Dec. 31, 1980	1,971,016	457,315	347,171	98,853	2,874,355
Number of Questionnaires Mailed	73,370	16,478	31,415	12,733	133,996
Questionnaires Mailed as a Percentage of Total Households	3.7%	3.6%	9.0%	12.9%	5.1%
Number of Questionnaires Returned	32,884	3,436	17,135	6,844	60,299
Returns as a Percentage of Questionnaires Mailed	44.8%	20.8%	54.5%	53.8%	45.0%
Returns as a Percentage of Total Households	1.7%	0.8%	4.9%	6.9%	2.1%

* Including Participating Non-Hydro Municipalities

LIST OF PARTICIPATING RURAL OPERATING AREAS

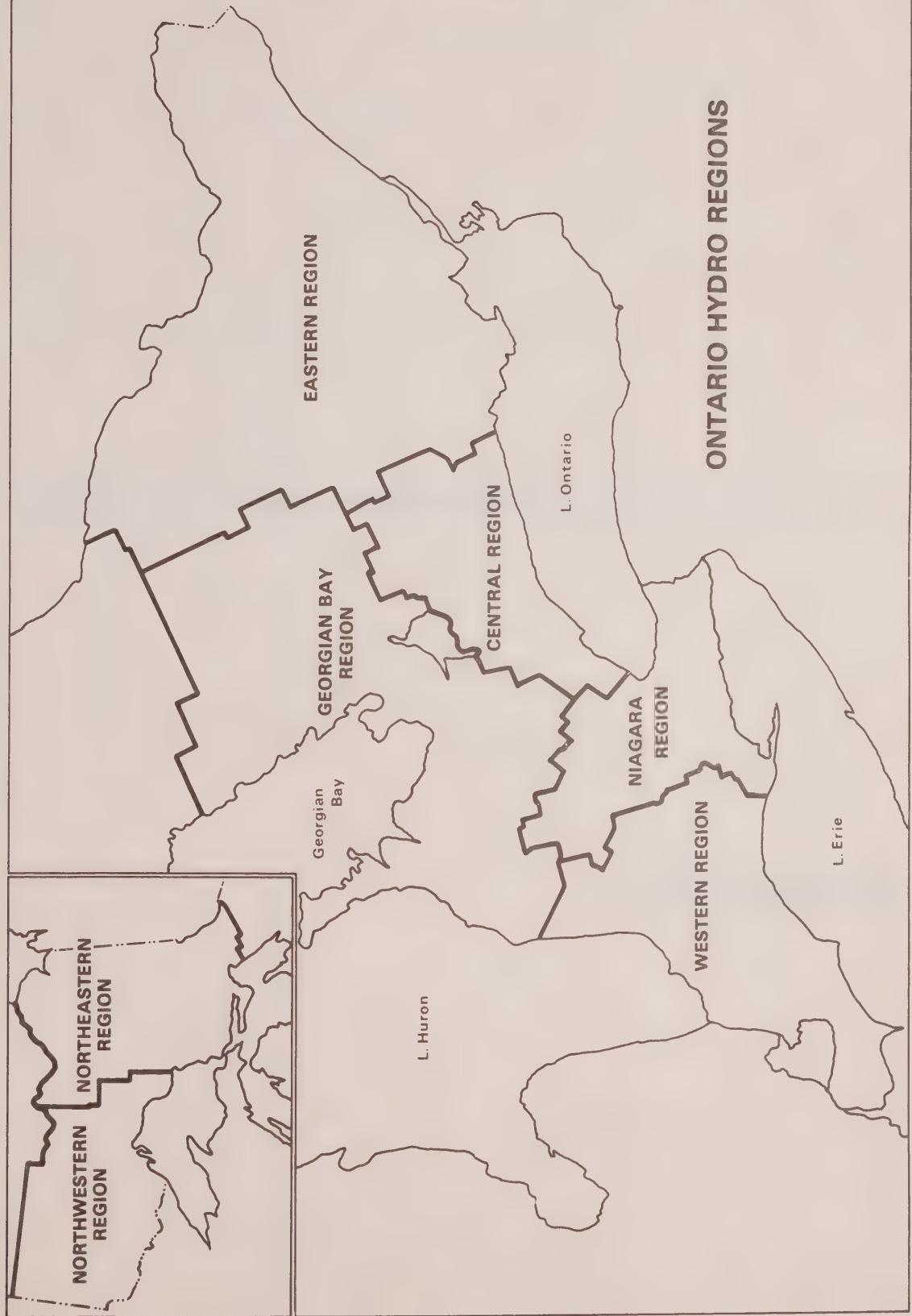
NE	ALGOMA	W	LAMBTON
GB	ALLISTON	N	LISTOWEL
E	ARNPRIOR		
E	BANCROFT	NE	MANITOULIN
GB	BARRIE	NE	MATHESON
W	BEACHVILLE	GB	MINDEN
N	BEAMSVILLE		
C	BOWMANVILLE	NE	NEW LISKEARD
GB	BRACEBRIDGE	C	NEWMARKET
N	BRANTFORD	NE	NORTH BAY
E	BROCKVILLE		
N	CAYUGA	GB	ORANGEVILLE
W	CLINTON	GB	ORILLIA
E	COBDEN	GB	OWEN SOUND
C	COBOURG		
NW	DRYDEN	GB	PARRY SOUND
N	DUNDAS	GB	PENETANGUISHENE
		E	PERTH
		C	PETERBOROUGH
		E	PICTON
W	EAST ELGIN	N	SIMCOE
W	ESSEX	GB	STAYNER
		N	STONEY CREEK
C	FENELON FALLS	W	STRATHROY
NW	FORT FRANCES	NE	SUDBURY
E	FRANKFORD		
NW	GERALDTON	NW	THUNDER BAY
N	GUELPH	NE	TIMMINS
		E	TWEED
GB	HUNTSVILLE	E	VANKLEEK HILL
NE	KAPUSKASING	GB	WALKERTON
NW	KENORA	NE	WARREN
W	KENT	E	WINCHESTER
E	KINGSTON		
NW	KIRKLAND LAKE		

LIST OF PARTICIPATING MUNICIPALITIES

E	Alexandria	W	Grand Bend	N	Port Rowan
GB	Alliston	N	Grimby	W	Port Stanley
E	Almonte	N	Guelph	E	Prescott
W	Alvinston				
W	Amherstburg				
E	Arnprior	N	Hagersville	E	Renfrew
NW	Atikokan Twp.	W	Harrow	C	Richmond Hill
W	Alymer	GB	Huntsville	W	Ridgeway
				E	Rockland
				N	Rockwood
E	Barry's Bay	W	Ingersoll	W	Rodney
GB	Beeton				
W	Belle River				
E	Belleville	E	Kemptville	N	St. Catharines
W	Belmont	E	Killaloe Station	W	St. Clair Beach
N	Blandford-Blenheim	GB	Kincardine	W	St. Mary's
W	Blenheim	E	Kingston	W	Sandwich West Twp.
W	Blyth	W	Kingsville	W	Sarnia
W	Bothwell			NE	Sault Ste. Marie *
E	Braeside			C	Scarborough
C	Bradford	E	Lancaster	C	Scugog
N	Brantford Twp.	W	Lambeth	NW	Schreiber Twp.
E	Brockville	N	Lincoln	W	Seaford
N	Burford	C	Lindsay	NW	Sioux Lookout
		W	London	E	Smiths Falls
GB	Caledon	GB	L'original	GB	Southampton
N	Caldonia	N	Lucknow	N	Stoney Creek
N	Cambridge-N. Dumphries			W	Strathroy
E	Campbellford	N	Lynden	NE	Sudbury
NE	Capreol	C	Markham		
E	Casselman	GB	Meadford	W	Tecumseh
N	Cayuga	GB	Midland	NW	Terrace Bay
NE	Chapleau Twp.	C	Millbrook	GB	Thornbury
W	Chatham	C	Milton	N	Thorold
N	Clifford	C	Mississauga	NW	Thunder Bay
W	Clinton	W	Mitchell	W	Tilbury
E	Cobden	W	Mount Brydges	W	Tillsonburg
C	Cobourg	GB	Mount Forest	C	Toronto
NE	Cochrane			E	Trenton
GB	Collingwood				
E	Cornwall *	E	Napanee		
W	Cottam	E	Nepean Twp.	E	Vankleek Hill
		C	Newcastle	GB	Victoria Harbour
E	Deep River	N	Niagara Falls		
W	Delaware	N	Niagara-on-the-Lake		
W	Dorchester	NW	Nipigon Twp.	GB	Walkerton
N	Dundas	C	North York	W	Wallaceburg
N	Dunnville	W	Norwich	GB	Wasaga Beach
GB	Durham			N	Waterford
W	Dutton	C	Omemee	W	Watford
		GB	Orillia	N	Welland
E	Eganville	E	Ottawa	W	West Lorne
N	Elora	GB	Owen Sound	C	Whitchurch-Stouffville
W	Erieau			W	Windsor
NE	Espanola	N	Palmerston	GB	Wingham
W	Essex	W	Parkhill	W	Woodstock
W	Exeter	N	Pelham	C	York
		E	Pembroke		
N	Fergus	GB	Penetanguishene		
W	Forest	E	Perth	W	Zorra
NW	Fort Frances *	C	Peterborough		
		W	Petrolia		
		E	Picton		
W	Glencoe	N	Port Colborne		
E	Gloucester Twp.	GB	Port Elgin		
W	Goderich	GB	Port McNicoll		

* Non-Hydro Municipality

MAP OF ONTARIO HYDRO REGIONS



PROVINCIAL SATURATION STATISTICS OF SELECTED APPLIANCES

SECTION II

M5 PROVINCIAL APPLIANCE SATURATION STATISTICS OF SELECTED APPLIANCES BY REGION* 1980

REGION	WESTERN	NIAGARA	CENTRAL	GEORGIAN BAY	EASTERN	NORTH- EASTERN	NORTH- WESTERN	PROVINCIAL TOTAL
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	376339	406451	1077286	130157	385941	142305	67156	2585635
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	85.3	88.6	91.6	93.6	95.5	96.1	94.8	91.3
MICROWAVE OVEN	10.2	8.4	7.9	10.8	7.0	9.3	10.9	8.5
COUNTER TOP BROILER OVEN	13.3	13.4	13.9	11.2	11.7	9.8	9.3	13.0
HOME FOOD FREEZER	60.6	55.8	45.2	74.3	58.4	65.9	66.8	54.3
ELECTRIC REFRIG, ANY TYPE	99.8	99.6	99.7	99.6	99.9	99.7	99.7	99.8
REFRIGERATOR - FREEZER	76.9	76.8	74.5	74.9	74.2	74.6	74.2	75.4
OTHER REFRIGERATOR	47.0	44.8	44.8	46.3	45.3	46.8	42.7	45.3
AUTOMATIC DISHWASHER	30.9	24.4	29.8	30.6	32.6	27.0	28.0	29.6
AUTOMATIC WASHER	64.0	55.1	52.3	59.5	55.7	65.8	66.5	56.9
OTHER WASHER	15.9	17.6	13.6	28.3	18.9	21.0	20.1	16.6
COMBINATION WASHER-DRYER	1.1	1.1	1.1	1.9	1.4	1.1	.9	1.2
CLOTHES DRYER	57.3	48.9	46.0	70.1	59.6	68.0	68.6	53.4
ELECTRIC WATER HEATER	40.2	38.0	40.5	82.0	77.1	71.5	56.9	49.6
CENTRAL AIR CONDITIONING	14.7	10.3	14.9	3.2	8.8	1.0	1.4	11.7
WINDOW AIR COND. - ONE	25.2	22.7	17.9	8.8	15.6	5.7	4.1	17.9
WINDOW AIR COND. - 2 OR MORE	5.1	3.7	3.2	.9	2.0	.6	.4	3.1
DEHUMIDIFIER	25.5	25.8	20.0	21.2	20.6	19.4	9.7	21.8
ELECTRIC BLANKET	21.3	18.5	16.8	22.3	18.3	13.7	12.8	18.0
ELECTRIC HOME HEATING	13.9	10.6	10.1	25.2	17.2	19.9	13.2	12.9
PLUG-IN SPACE HEATER	11.7	11.8	14.4	10.7	12.2	8.9	10.2	12.8
BUILT-IN SPACE HEATER	11.3	8.5	9.1	23.3	14.8	17.2	15.6	11.4
PLUG-IN HUMIDIFIER	22.8	23.7	26.6	27.9	25.6	20.1	14.3	24.8
POWER HUMIDIFIER ON FURNACE	24.6	22.5	23.0	15.2	17.3	12.2	10.6	21.4
BLACK & WHITE TELEVISION	38.9	33.6	37.1	34.7	38.6	36.5	35.3	36.9
COLOUR TELEVISION	84.9	84.8	81.8	82.4	81.3	86.0	82.9	83.1

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM NORMAL DEN	RURAL HIGH DEN	RURAL TOTAL	MUNICIPAL TOTAL*	PROVINCIAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	98853	163260	183911	446024	2139611	2585635
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	89.9	90.1	92.5	91.1	91.4	91.3
MICROWAVE OVEN	11.6	10.6	11.3	11.1	8.0	8.5
COUNTER TOP BROILER OVEN	9.0	10.3	11.4	10.5	13.5	13.0
HOME FOOD FREEZER	87.9	80.5	73.2	79.1	49.3	54.3
ELECTRIC REFRIG, ANY TYPE	99.9	99.8	99.8	99.8	99.7	99.8
REFRIGERATOR - FREEZER	72.3	74.7	78.1	75.5	75.4	75.4
OTHER REFRIGERATOR	51.5	47.9	46.3	48.0	44.8	45.3
AUTOMATIC DISHWASHER	36.2	29.5	33.2	32.5	29.1	29.6
AUTOMATIC WASHER	62.8	61.4	69.1	64.9	55.3	56.9
OTHER WASHER	31.6	31.2	23.1	28.0	14.4	16.6
COMBINATION WASHER-DRYER	1.3	1.5	1.6	1.5	1.1	1.2
CLOTHES DRYER	73.8	73.6	73.7	73.7	49.3	53.4
ELECTRIC WATER HEATER	89.1	87.5	72.1	81.5	43.3	49.6
CENTRAL AIR CONDITIONING	3.5	4.9	7.0	5.5	13.0	11.7
WINDOW AIR COND. - ONE	9.5	10.6	12.7	11.2	19.2	17.9
WINDOW AIR COND. - 2 OR MORE	1.4	1.4	2.0	1.6	3.4	3.1
DEHUMIDIFIER	12.7	23.1	27.5	22.6	21.6	21.8
ELECTRIC BLANKET	26.4	19.4	19.0	20.8	17.5	18.0
ELECTRIC HOME HEATING	5.2	23.4	21.7	18.7	11.7	12.9
PLUG-IN SPACE HEATER	13.1	9.5	10.2	10.6	13.2	12.8
BUILT-IN SPACE HEATER	13.3	20.4	18.0	17.8	10.1	11.4
PLUG-IN HUMIDIFIER	24.0	21.4	21.3	21.9	25.3	24.8
POWER HUMIDIFIER ON FURNACE	16.5	16.4	18.9	17.4	22.2	21.4
BLACK & WHITE TELEVISION	39.1	40.0	35.9	38.1	36.7	36.9
COLOUR TELEVISION	78.3	79.8	87.4	82.6	83.1	83.1

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

M7

SATURATION STATISTICS OF MUNICIPAL RESPONDENTS
BY ANNUAL KWH-USE BLOCKS, 1980

ANNUAL ENERGY IN KWH	500- 2499.9	2500- 4499.9	4500- 6499.9	6500- 8499.9	8500- 10499.9	10500- 12499.9	12500- 14499.9	14500 AND OVER
SAMPLE SIZE	771	1779	2695	3144	2704	2092	1532	3538
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
RANGE, SELF-CLEAN	8.8	12.1	19.0	22.5	27.9	32.6	36.8	47.9
RANGE, OTHER	71.6	68.6	72.9	77.0	77.9	79.0	78.5	73.8
MICROWAVE OVEN	6.5	9.7	13.4	15.7	17.8	21.3	28.6	34.1
HOME FOOD FREEZER	20.8	37.3	55.6	62.4	66.6	69.0	72.7	74.0
REFR-FREEZER	28.4	22.9	17.3	16.8	14.4	14.4	12.6	11.8
REFR-FREEZER FROSTFREE	27.2	44.4	58.7	62.2	67.1	68.8	72.1	73.0
CONVENTIONAL REFRIGERATOR	52.8	42.6	41.1	42.8	45.1	46.4	47.8	50.3
AUTOMATIC DISHWASHER	6.9	10.9	20.9	29.1	36.5	43.0	50.2	57.4
AUTOMATIC WASHER	23.0	42.9	63.2	70.1	76.7	80.7	85.4	87.7
CONVENTIONAL WASHER	22.8	28.5	25.1	20.8	17.0	14.6	11.6	9.6
COMBINATION WASHER-DRYER	2.5	2.0	1.3	1.3	.9	1.1	.6	.8
CLOTHES DRYER	19.2	32.2	52.4	62.8	72.8	75.0	85.0	87.3
ELECTRIC WATER HEATING	21.5	24.7	31.6	43.9	57.4	68.3	73.4	84.6
SWIMMING-POOL FILTER	.9	.8	1.7	3.8	5.7	7.8	10.5	13.8
SUPPL. SPACE HEATER	21.3	19.7	23.1	24.6	26.5	30.5	33.9	50.2
CENTRAL AIR CONDITIONING	3.9	3.7	6.9	10.7	13.7	16.4	19.7	18.8
WINDOW AIR CONDITIONER	15.1	22.0	21.1	21.1	21.7	24.0	23.2	20.8
DEHUMIDIFIER	7.1	11.6	20.4	24.4	31.0	31.8	33.5	36.4
PLUG-IN HUMIDIFIER	21.7	19.7	21.3	22.2	22.9	24.9	24.9	28.9
FURNACE POWER HUMIDIFIER	6.6	13.9	23.3	26.9	28.4	30.7	32.2	26.0
ELECTRIC BLANKET	13.1	15.7	17.9	21.2	21.2	21.3	23.2	23.5
BLACK & WHITE TELEVISION	38.0	33.8	36.9	36.8	40.2	41.9	42.2	41.6
COLOUR TELEVISION	66.7	76.1	83.9	87.0	88.5	88.4	91.0	91.4

SATURATION STATISTICS OF RURAL NON-FARM RESPONDENTS
BY ANNUAL KWH-USE BLOCKS, 1980

ANNUAL ENERGY IN KWH	500- 2499.9	2500- 4499.9	4500- 6499.9	6500- 8499.9	8500- 10499.9	10500- 12499.9	12500- 14499.9	14500 AND OVER
SAMPLE SIZE	395	1023	1872	2332	2309	1940	1525	5592
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
RANGE, SELF-CLEAN	11.1	9.4	13.4	15.4	21.1	27.0	26.8	35.7
RANGE, OTHER	61.3	63.2	74.4	79.9	80.6	79.6	81.4	79.3
MICROWAVE OVEN	11.7	9.2	9.9	15.3	17.9	24.0	21.9	31.8
HOME FOOD FREEZER	40.3	50.8	68.5	77.2	79.7	82.4	83.9	82.6
REFR-FREEZER	23.8	25.6	20.3	17.8	16.6	16.1	13.7	13.3
REFR-FREEZER FROSTFREE	30.9	35.0	46.6	54.5	59.3	63.9	64.9	67.0
CONVENTIONAL REFRIGERATOR	56.0	47.2	46.4	45.4	46.6	45.3	47.7	49.0
AUTOMATIC DISHWASHER	11.7	7.4	10.1	18.6	24.6	32.9	36.2	46.7
AUTOMATIC WASHER	26.3	28.5	40.8	51.4	61.2	69.9	73.6	79.5
CONVENTIONAL WASHER	39.8	45.2	43.1	39.7	32.4	26.1	21.4	16.9
COMBINATION WASHER-DRYER	4.1	2.4	2.6	2.3	1.3	.9	1.1	1.1
CLOTHES DRYER	29.1	33.7	50.6	65.0	76.1	81.9	82.1	86.4
ELECTRIC WATER HEATING	45.3	55.0	65.2	72.7	80.9	87.1	91.3	96.4
SWIMMING-POOL FILTER	1.5	1.1	1.4	2.4	4.8	6.7	9.3	11.2
SUPPL. SPACE HEATER	46.3	32.7	31.5	34.1	33.8	38.6	45.2	61.8
CENTRAL AIR CONDITIONING	2.3	1.5	2.1	3.3	3.6	4.9	4.9	8.3
WINDOW AIR CONDITIONER	6.6	8.3	9.1	12.6	12.2	14.0	15.3	13.5
DEHUMIDIFIER	7.1	6.7	13.8	19.0	24.1	26.7	29.0	30.7
PLUG-IN HUMIDIFIER	9.4	13.5	15.9	18.8	20.4	21.6	22.4	27.8
FURNACE POWER HUMIDIFIER	5.3	8.0	13.6	16.6	18.1	20.3	20.8	15.8
ELECTRIC BLANKET	21.3	16.8	17.8	19.1	18.2	20.7	17.8	21.4
BLACK & WHITE TELEVISION	49.4	36.2	53.9	34.7	36.6	38.3	39.3	37.2
COLOUR TELEVISION	53.7	67.6	76.7	82.5	84.5	84.7	85.3	87.9

M9 SATURATION STATISTICS OF SELECTED APPLIANCES
 USING OTHER FORMS OF ENERGY
 BY LOCATION OF CUSTOMER

1980

LOCATION	RURAL FARM	RURAL NON-FARM	MUNICIPAL *	PROVINCIAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	98853	347171	2139611	2585635
CUSTOMERS USING	PERCENT	PERCENT	PERCENT	PERCENT
GAS RANGE, ANY TYPE	11.8	9.4	10.3	10.2
GAS CLOTHES DRYER	3.7	3.8	5.8	5.5
GAS WATER HEATING	7.1	15.7	41.2	36.6
GAS HOME HEATING	11.8	21.5	50.1	45.0
OIL WATER HEATING	1.1	2.4	2.1	2.1
OIL HOME HEATING	73.8	50.2	28.4	32.9
SOLAR HOME HEATING	-	-	-	-
OTHER FUEL FOR WATER HEATING OR NO WATER HEATER	.9	.7	.5	.5
WOOD OR COAL HOME HEATING	8.0	4.4	.4	1.2
DO NOT KNOW FUEL FOR WATER HEATING	.1	.5	12.6	10.5
DO NOT KNOW FUEL FOR HOME HEATING	-	.3	8.3	7.0

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

REGIONAL SATURATION STATISTICS OF SELECTED APPLIANCES

SECTION III

SAMPLE CHARACTERISTICS - MUNICIPAL HOUSEHOLDS *

	<u>Western</u>	<u>Niagara</u>	<u>Central</u>	<u>Georgian Bay</u>	<u>Eastern</u>	<u>North-Eastern</u>	<u>North-Western</u>	<u>Provincial Total</u>
Total Number of Households (As Dec. 31, 1980)	306,466	475,326	1,116,158	86,312	300,382	89,114	54,573	2,428,331
Number of Participating Utilities	49	28	17	22	31	6	7	160
Number of Households Served by These Utilities (Estimated, as Dec. 31, 1980)	276,353	233,684	862,377	50,661	276,221	64,077	47,331	1,810,704
Per Cent Coverage	90.1%	49.1%	77.3%	58.7%	91.9%	71.9%	86.7%	74.6%
Sample Size	18,645	16,750	29,130	5,443	11,597	6,457	3,363	91,385
Net Processable Returns:								
Total	7,911	6,263	10,624	2,599	4,996	2,453	1,474	36,320
As a Percentage of Total Households	2.6%	1.3%	.95%	3.0%	1.7%	2.8%	2.7%	1.5%
As a Percentage of Sample	42.4%	37.4%	36.4%	47.7%	43.0%	38.1%	43.8%	39.7%

* Includes Bulk-Metered Apartments and Non-Hydro Municipalities

REGION	WESTERN	NIAGARA	CENTRAL	GEORGIAN	EASTERN	NORTH-EASTERN	NORTH-WESTERN	PROVINCIAL
			BAY					TOTAL
TOTAL NO. OF RES. HOUSEHOLDS OF PARTICIPATING MUNICIPALITIES (ESTIMATED)	294356	348314	1030599	54445	276222	84107	51568	2585635
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	85.4	88.7	91.3	93.7	97.0	97.0	96.6	91.4
MICROWAVE OVEN	9.5	7.7	7.6	10.7	6.4	8.8	11.1	8.0
COUNTER TOP BROILER OVEN	13.8	13.8	14.0	11.3	12.5	10.6	9.6	13.5
HOME FOOD FREEZER	54.9	51.5	43.5	65.4	50.4	61.2	64.6	49.3
ELECTRIC REFRIG, ANY TYPE	99.8	99.6	99.7	99.8	99.9	99.9	99.7	99.7
REFRIGERATOR - FREEZER	76.5	76.4	74.5	76.2	73.9	76.7	75.7	75.4
OTHER REFRIGERATOR	46.2	44.2	45.6	44.2	44.5	46.1	42.1	44.8
AUTOMATIC DISHWASHER	29.1	22.7	29.1	30.1	32.6	27.3	29.5	29.1
AUTOMATIC WASHER	61.0	53.1	51.8	60.1	53.1	66.6	68.5	55.3
OTHER WASHER	14.6	15.7	12.9	23.4	14.4	16.6	17.6	14.4
COMBINATION WASHER-DRYER	1.1	1.0	1.1	2.0	1.4	.6	.8	1.1
CLOTHES DRYER	52.3	45.0	44.6	66.7	53.6	64.8	69.0	49.3
ELECTRIC WATER HEATER	31.3	32.3	38.1	70.3	73.3	69.3	50.0	43.3
CENTRAL AIR CONDITIONING	15.7	10.5	15.3	3.6	10.5	1.2	1.5	13.0
WINDOW AIR COND. - ONE	27.6	24.1	18.2	10.7	16.9	5.8	3.8	19.2
WINDOW AIR COND. - 2 OR MORE	5.6	3.9	3.3	.9	2.4	.6	.4	3.4
DEHUMIDIFIER	25.7	24.8	19.8	23.4	19.2	22.8	10.6	21.6
ELECTRIC BLANKET	20.5	17.7	16.4	21.0	18.0	14.0	13.4	17.5
ELECTRIC HOME HEATING	13.5	10.6	9.5	23.8	16.6	20.7	12.4	11.7
PLUG-IN SPACE HEATER	11.8	11.6	14.6	10.4	13.1	9.4	10.7	13.2
BUILT-IN SPACE HEATER	10.5	7.8	8.5	21.9	13.5	17.5	15.2	10.1
PLUG-IN HUMIDIFIER	22.4	24.1	26.8	31.0	26.7	23.6	14.5	25.3
POWER HUMIDIFIER ON FURNACE	24.9	22.2	23.1	16.8	18.1	13.4	11.6	22.2
BLACK & WHITE TELEVISION	38.8	32.7	37.2	31.2	37.9	37.1	35.1	36.7
COLOUR TELEVISION	84.9	85.2	81.8	86.1	80.9	87.3	84.8	83.1

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

SAMPLE CHARACTERISTICS - RURAL NON-FARM HOUSEHOLDS 1980

<u>Rural</u>	<u>Western</u>	<u>Niagara</u>	<u>Central</u>	<u>Georgian Bay</u>	<u>Eastern</u>	<u>North-Eastern</u>	<u>North-Western</u>	<u>Provincial Total</u>
Total Number of Rural Non-Farm Residential Households (As at Dec. 31, 1980)	50,911	42,786	37,619	57,964	87,592	55,655	14,644	347,171
Number of Areas in Survey	7	8	5	12	11	10	5	58
Number of Rural Non-Farm Residential Households Served by These Areas	50,911	42,786	37,619	57,964	87,592	55,655	14,644	347,171
Per Cent Coverage	100%	100%	100%	100%	100%	100%	100%	100%
Net Sample Size	3,960	3,874	2,905	6,569	6,297	5,451	2,359	31,415
Net Processable Returns:								
Total	2,296	2,214	1,661	3,722	3,491	2,566	1,185	17,135
As a Percentage of Non-Farm Residential Households	4.5%	5.2%	4.4%	6.4%	3.9%	4.6%	8.1%	4.9%
As a Percentage of Sample	57.9%	57.2%	57.1%	56.6%	55.4%	47.1%	50.2%	54.5%

M12

APPLIANCE SATURATION STATISTICS - RURAL NON-FARM CUSTOMERS

1980

REGION	WESTERN	NIAGARA	CENTRAL	GEORGIAN BAY	EASTERN	NORTH- EASTERN	NORTH- WESTERN	PROVINCIAL TOTAL
TOTAL NO. OF RES. HOUSEHOLDS (ESTIMATED)	50911	42786	37619	57964	87592	55655	14644	347171
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	83.2	88.2	96.0	93.9	92.2	95.0	88.7	91.4
MICROWAVE OVEN	12.0	12.6	13.9	11.0	8.8	10.1	10.7	11.0
COUNTER TOP BROILER OVEN	11.8	12.1	11.8	12.0	10.3	8.8	8.6	10.9
HOME FOOD FREEZER	77.3	79.1	79.2	77.7	76.7	71.9	73.6	76.6
ELECTRIC REFRIG, ANY TYPE	99.8	100.0	100.0	99.7	99.9	99.5	99.5	99.8
REFRIGERATOR - FREEZER	80.6	80.9	77.9	74.9	76.3	71.9	69.8	76.5
OTHER REFRIGERATOR	47.8	47.2	47.4	47.0	46.5	47.7	44.2	47.0
AUTOMATIC DISHWASHER	36.3	33.2	33.3	29.2	32.8	26.8	23.7	31.5
AUTOMATIC WASHER	75.9	68.4	63.1	59.0	64.3	65.2	60.5	65.5
OTHER WASHER	18.5	26.9	29.5	31.3	28.1	26.6	27.0	26.9
COMBINATION WASHER-DRYER	1.0	1.4	1.6	2.0	1.5	1.8	1.0	1.5
CLOTHES DRYER	73.3	72.4	76.5	72.0	75.9	72.7	67.4	73.6
ELECTRIC WATER HEATER	63.9	68.6	92.8	88.9	85.0	73.9	79.1	79.4
CENTRAL AIR CONDITIONING	14.5	10.7	5.2	3.3	5.2	.7	1.1	6.0
WINDOW AIR COND. - ONE	17.9	15.7	12.0	8.4	13.2	5.6	5.2	11.7
WINDOW AIR COND. - 2 OR MORE	3.9	2.8	1.5	1.0	1.4	.6	.3	1.7
DEHUMIDIFIER	30.2	37.3	27.2	22.6	27.9	14.6	6.7	25.4
ELECTRIC BLANKET	22.0	21.2	23.2	22.3	18.1	13.0	10.4	19.2
ELECTRIC HOME HEATING	21.6	12.5	27.9	32.6	22.1	19.3	16.6	22.5
PLUG-IN SPACE HEATER	9.4	12.0	10.5	10.3	9.9	8.1	8.4	9.9
BUILT-IN SPACE HEATER	14.3	12.5	23.5	27.7	19.1	17.0	17.4	19.1
PLUG-IN HUMIDIFIER	22.7	20.7	22.1	26.2	22.7	15.1	13.4	21.4
POWER HUMIDIFIER ON FURNACE	26.0	25.6	21.7	14.2	15.8	10.5	7.3	17.7
BLACK & WHITE TELEVISION	39.5	38.5	34.7	36.7	40.5	35.3	35.9	37.8
COLOUR TELEVISION	86.7	84.3	85.6	81.0	83.7	84.7	77.3	83.8

SAMPLE CHARACTERISTICS - RURAL FARM HOUSEHOLDS - 1980

<u>Region</u>	<u>Western</u>	<u>Niagara</u>	<u>Central</u>	<u>Georgian Bay</u>	<u>Eastern</u>	<u>North-Eastern</u>	<u>North-Western</u>	<u>Provincial Total</u>
Total Number of Farm Households	31,072	15,351	9,068	17,748	22,127	2,543	944	98,853
Number of Areas Surveyed	7	8	5	12	11	10	5	58
Number of Farm Households Served by These Areas	31,072	15,351	9,068	17,748	22,127	2,543	944	98,853
Per Cent Coverage	100%	100%	100%	100%	100%	100%	100%	100%
Set Sample Size	2,071	2,017	1,282	2,538	2,830	1,465	530	12,733
Set Processable Returns:								
Total	1,181	1,117	717	1,338	1,512	708	271	6,844
As a Percentage of Total Farm Households	3.8%	7.3%	7.9%	7.5%	6.8%	27.8%	28.7%	6.9%
As a Percentage of Sample	57.0%	55.4%	55.9%	52.7%	53.4%	48.3%	51.1%	53.7%

M13

APPLIANCE SATURATION STATISTICS - RURAL FARM CUSTOMERS

1980

REGION	WESTERN	NIAGARA	CENTRAL	GEORGIAN BAY	EASTERN	NORTH- EASTERN	NORTH- WESTERN	PROVINCIAL TOTAL
TOTAL NO. OF FARM HOUSEHOLDS (ESTIMATED)	31072	15351	9068	17748	22127	2543	944	98853
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	88.1	86.8	96.2	92.5	89.5	91.8	90.6	89.9
MICROWAVE OVEN	14.6	12.6	12.6	10.2	8.3	7.7	4.9	11.6
COUNTER TOP BROILER OVEN	10.8	9.1	9.3	8.0	7.7	5.5	7.5	9.0
HOME FOOD FREEZER	87.2	88.5	86.1	90.6	87.3	87.6	82.1	87.9
ELECTRIC REFRIG, ANY TYPE	99.9	99.9	99.8	99.9	99.9	99.9	99.2	99.9
REFRIGERATOR - FREEZER	74.7	74.2	72.6	71.4	69.3	64.6	64.2	72.3
OTHER REFRIGERATOR	53.7	50.5	51.1	50.4	50.1	53.6	48.2	51.5
AUTOMATIC DISHWASHER	39.7	38.6	36.8	36.8	31.4	21.8	14.4	36.2
AUTOMATIC WASHER	72.2	62.6	60.8	59.2	55.2	54.4	47.4	62.8
OTHER WASHER	23.9	33.0	32.4	33.4	38.1	41.6	47.0	31.6
COMBINATION WASHER-DRYER	.9	1.4	1.2	1.3	1.8	1.5	2.6	1.3
CLOTHES DRYER	78.3	70.5	73.8	74.4	69.8	73.0	62.9	73.8
ELECTRIC WATER HEATER	85.2	82.2	94.4	95.1	92.3	91.1	88.4	89.1
CENTRAL AIR CONDITIONING	6.2	5.4	2.2	1.6	1.1	.5	.6	3.5
WINDOW AIR COND. - ONE	13.7	10.2	8.4	4.8	8.6	3.0	2.6	9.5
WINDOW AIR COND. - 2 OR MORE	2.3	1.3	1.6	.7	.7	.1	-	1.4
DEHUMIDIFIER	16.1	17.8	9.8	9.9	8.5	7.7	8.2	12.7
ELECTRIC BLANKET	28.2	30.7	27.0	26.5	22.3	17.0	12.6	26.4
ELECTRIC HOME HEATING	5.1	4.6	5.5	4.9	5.9	6.5	3.4	5.2
PLUG-IN SPACE HEATER	14.6	13.8	14.2	13.0	10.6	9.0	14.4	13.1
BUILT-IN SPACE HEATER	13.4	13.1	14.5	13.1	13.6	9.9	9.9	13.3
PLUG-IN HUMIDIFIER	27.8	23.7	19.1	24.1	22.5	13.8	13.9	24.0
POWER HUMIDIFIER ON FURNACE	18.7	19.8	21.8	13.1	12.9	8.9	7.2	16.5
BLACK & WHITE TELEVISION	39.1	40.8	34.4	38.7	40.3	39.1	37.6	39.1
COLOUR TELEVISION	82.1	76.5	79.6	75.7	77.1	71.7	63.4	78.3

M14

APPLIANCE SATURATION STATISTICS IN WESTERN REGION

1980

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM	MUNICIPAL*	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	31072	50911	294356	376339
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	88.1	83.2	85.4	85.3
MICROWAVE OVEN	14.6	12.0	9.5	10.2
COUNTER TOP BROILER OVEN	10.8	11.8	13.8	13.3
HOME FOOD FREEZER	87.2	77.3	54.9	60.6
ELECTRIC REFRIG, ANY TYPE	99.9	99.8	99.8	99.8
REFRIGERATOR - FREEZER	74.7	80.6	76.5	76.9
OTHER REFRIGERATOR	53.7	47.8	46.2	47.0
AUTOMATIC DISHWASHER	39.7	36.3	29.1	30.9
AUTOMATIC WASHER	72.2	75.9	61.0	64.0
OTHER WASHER	23.9	18.5	14.6	15.9
COMBINATION WASHER-DRYER	.9	1.0	1.1	1.1
CLOTHES DRYER	78.3	73.3	52.3	57.3
ELECTRIC WATER HEATER	85.2	63.9	31.3	40.2
CENTRAL AIR CONDITIONING	6.2	14.5	15.7	14.7
WINDOW AIR COND. - ONE	13.7	17.9	27.6	25.2
WINDOW AIR COND. - 2 OR MORE	2.3	3.9	5.6	5.1
DEHUMIDIFIER	16.1	30.2	25.7	25.5
ELECTRIC BLANKET	28.2	22.0	20.5	21.3
ELECTRIC HOME HEATING	5.1	21.6	13.5	13.9
PLUG-IN SPACE HEATER	14.6	9.4	11.8	11.7
BUILT-IN SPACE HEATER	13.4	14.3	10.5	11.3
PLUG-IN HUMIDIFIER	27.8	22.7	22.4	22.8
POWER HUMIDIFIER ON FURNACE	18.7	26.0	24.9	24.6
BLACK & WHITE TELEVISION	39.1	39.5	38.8	38.9
COLOUR TELEVISION	82.1	86.7	84.9	84.9

*INCLUDING BULK-METERED APARTMENTS

M15

APPLIANCE SATURATION STATISTICS IN NIAGARA REGION

1980

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM	MUNICIPAL*	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	15351	42786	348314	406451
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	86.8	88.2	88.7	88.6
MICROWAVE OVEN	12.6	12.6	7.7	8.4
COUNTER TOP BROILER OVEN	9.1	12.1	13.8	13.4
HOME FOOD FREEZER	88.5	79.1	51.5	55.8
ELECTRIC REFRIG, ANY TYPE	99.9	100.0	99.6	99.6
REFRIGERATOR - FREEZER	74.2	80.9	76.4	76.8
OTHER REFRIGERATOR	50.5	47.2	44.2	44.8
AUTOMATIC DISHWASHER	38.6	33.2	22.7	24.4
AUTOMATIC WASHER	62.6	68.4	53.1	55.1
OTHER WASHER	33.0	26.9	15.7	17.6
COMBINATION WASHER-DRYER	1.4	1.4	1.0	1.1
CLOTHES DRYER	70.5	72.4	45.0	48.9
ELECTRIC WATER HEATER	82.2	68.6	32.3	38.0
CENTRAL AIR CONDITIONING	5.4	10.7	10.5	10.3
WINDOW AIR COND. - ONE	10.2	15.7	24.1	22.7
WINDOW AIR COND. - 2 OR MORE	1.3	2.8	3.9	3.7
DEHUMIDIFIER	17.8	37.3	24.8	25.8
ELECTRIC BLANKET	30.7	21.2	17.7	18.5
ELECTRIC HOME HEATING	4.6	12.5	10.6	10.6
PLUG-IN SPACE HEATER	13.8	12.0	11.6	11.8
BUILT-IN SPACE HEATER	13.1	12.5	7.8	8.5
PLUG-IN HUMIDIFIER	23.7	20.7	24.1	23.7
POWER HUMIDIFIER ON FURNACE	19.8	25.6	22.2	22.5
BLACK & WHITE TELEVISION	40.8	38.5	32.7	33.6
COLOUR TELEVISION	76.5	84.3	85.2	84.8

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

M16

APPLIANCE SATURATION STATISTICS IN CENTRAL REGION

1980

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM	MUNICIPAL*	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	9068	37619	1030599	1166008
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	96.2	96.0	91.3	91.8
MICROWAVE OVEN	12.6	13.9	7.6	7.9
COUNTER TOP BROILER OVEN	9.3	11.8	14.0	14.0
HOME FOOD FREEZER	86.1	79.2	43.5	45.9
ELECTRIC REFRIG, ANY TYPE	99.8	100.0	99.7	99.8
REFRIGERATOR - FREEZER	72.6	77.9	74.5	75.1
OTHER REFRIGERATOR	51.1	47.4	45.6	44.8
AUTOMATIC DISHWASHER	36.8	33.3	29.1	30.4
AUTOMATIC WASHER	60.8	63.1	51.8	53.8
OTHER WASHER	32.4	29.5	12.9	13.8
COMBINATION WASHER-DRYER	1.2	1.6	1.1	1.1
CLOTHES DRYER	73.8	76.5	44.6	47.1
ELECTRIC WATER HEATER	94.4	92.8	38.1	41.0
CENTRAL AIR CONDITIONING	2.2	5.2	15.3	15.1
WINDOW AIR COND. - ONE	8.4	12.0	18.2	18.0
WINDOW AIR COND. - 2 OR MORE	1.6	1.5	3.3	3.3
DEHUMIDIFIER	9.8	27.2	19.8	20.6
ELECTRIC BLANKET	27.0	23.2	16.4	17.1
ELECTRIC HOME HEATING	5.5	27.9	9.5	9.7
PLUG-IN SPACE HEATER	14.2	10.5	14.6	14.5
BUILT-IN SPACE HEATER	14.5	23.5	8.5	9.0
PLUG-IN HUMIDIFIER	19.1	22.1	26.8	26.3
POWER HUMIDIFIER ON FURNACE	21.8	21.7	23.1	23.8
BLACK & WHITE TELEVISION	34.4	34.7	37.2	37.3
COLOUR TELEVISION	79.6	85.6	81.8	82.2

*INCLUDING BULK-METERED APARTMENTS

M17 APPLIANCE SATURATION STATISTICS IN GEORGIAN BAY REGION

1980

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM	MUNICIPAL*	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	17748	57964	54445	130157
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	92.5	93.9	93.7	93.6
MICROWAVE OVEN	10.2	11.0	10.7	10.8
COUNTER TOP BROILER OVEN	8.0	12.0	11.3	11.2
HOME FOOD FREEZER	90.6	77.7	65.4	74.3
ELECTRIC REFRIG, ANY TYPE	99.9	99.7	99.8	99.8
REFRIGERATOR - FREEZER	71.4	74.9	76.2	74.9
OTHER REFRIGERATOR	50.4	47.0	44.2	46.3
AUTOMATIC DISHWASHER	36.8	29.2	30.1	30.6
AUTOMATIC WASHER	59.2	59.0	60.1	59.5
OTHER WASHER	33.4	31.3	23.4	28.3
COMBINATION WASHER-DRYER	1.3	2.0	2.0	1.9
CLOTHES DRYER	74.4	72.0	66.7	70.1
ELECTRIC WATER HEATER	95.1	88.9	70.3	82.0
CENTRAL AIR CONDITIONING	1.6	3.3	3.6	3.2
WINDOW AIR COND. - ONE	4.8	8.4	10.7	8.8
WINDOW AIR COND. - 2 OR MORE	.7	1.0	.9	.9
DEHUMIDIFIER	9.9	22.6	23.4	21.2
ELECTRIC BLANKET	26.5	22.3	21.0	22.3
ELECTRIC HOME HEATING	4.9	32.6	23.8	25.2
PLUG-IN SPACE HEATER	13.0	10.3	10.4	10.7
BUILT-IN SPACE HEATER	13.1	27.7	21.9	23.3
PLUG-IN HUMIDIFIER	24.1	26.2	31.0	27.9
POWER HUMIDIFIER ON FURNACE	13.1	14.2	16.8	15.2
BLACK & WHITE TELEVISION	38.7	36.7	31.2	34.7
COLOUR TELEVISION	75.7	81.0	86.1	82.4

*INCLUDING BULK-METERED APARTMENTS

M18

APPLIANCE SATURATION STATISTICS IN EASTERN REGION

1980

CLASS OF SERVICE	RURAL FARM	RURAL NON-FARM	MUNICIPAL*	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	22127	87592	276222	386301
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	89.5	92.2	97.0	95.5
MICROWAVE OVEN	8.3	8.8	6.4	7.0
COUNTER TOP BROILER OVEN	7.7	10.3	12.5	11.7
HOME FOOD FREEZER	87.3	76.7	50.4	58.4
ELECTRIC REFRIG, ANY TYPE	99.9	99.9	99.9	99.9
REFRIGERATOR - FREEZER	69.3	76.3	73.9	74.2
OTHER REFRIGERATOR	50.1	46.5	44.5	45.3
AUTOMATIC DISHWASHER	31.4	32.8	32.6	32.6
AUTOMATIC WASHER	55.2	64.3	53.0	55.7
OTHER WASHER	39.1	28.1	14.4	18.9
COMBINATION WASHER-DRYER	1.8	1.5	1.4	1.4
CLOTHES DRYER	69.8	75.9	53.6	59.6
ELECTRIC WATER HEATER	92.3	85.0	73.3	77.1
CENTRAL AIR CONDITIONING	1.1	5.2	10.5	8.8
WINDOW AIR COND. - ONE	8.6	13.2	16.9	15.6
WINDOW AIR COND. - 2 OR MORE	.7	1.4	2.4	2.0
DEHUMIDIFIER	8.5	27.9	19.2	20.6
ELECTRIC BLANKET	22.3	18.1	18.0	18.3
ELECTRIC HOME HEATING	5.9	22.1	16.6	17.2
PLUG-IN SPACE HEATER	10.6	9.9	13.1	12.2
BUILT-IN SPACE HEATER	13.6	19.1	13.5	14.8
PLUG-IN HUMIDIFIER	22.5	22.7	26.7	25.6
POWER HUMIDIFIER ON FURNACE	12.9	15.8	18.1	17.3
BLACK & WHITE TELEVISION	40.3	40.5	37.9	38.6
COLOUR TELEVISION	77.1	83.7	80.9	81.3

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

M19 APPLIANCE SATURATION STATISTICS IN NORTHEASTERN REGION 1980

LOCATION	RURAL FARM	RURAL NON-FARM	MUNICIPAL *	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	2543	55655	84107	142305
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	91.8	95.0	97.0	96.1
MICROWAVE OVEN	7.7	10.1	8.8	9.3
COUNTER TOP BROILER OVEN	5.5	8.8	10.6	9.8
HOME FOOD FREEZER	87.6	71.9	61.2	65.9
ELECTRIC REFRIG, ANY TYPE	99.9	99.5	99.9	99.7
REFRIGERATOR - FREEZER	64.6	71.9	76.7	74.6
OTHER REFRIGERATOR	53.6	47.7	46.1	46.8
AUTOMATIC DISHWASHER	21.8	26.8	27.3	27.0
AUTOMATIC WASHER	54.4	65.2	66.6	65.8
OTHER WASHER	41.6	26.6	16.6	21.0
COMBINATION WASHER-DRYER	1.5	1.8	.6	1.1
CLOTHES DRYER	73.0	72.7	64.8	68.0
ELECTRIC WATER HEATER	91.1	73.9	69.3	71.5
CENTRAL AIR CONDITIONING	.5	.7	1.2	1.0
WINDOW AIR COND. - ONE	3.0	5.6	5.8	5.7
WINDOW AIR COND. - 2 OR MORE	.1	.6	.6	.6
DEHUMIDIFIER	7.7	14.6	22.8	19.4
ELECTRIC BLANKET	17.0	13.0	14.0	13.7
ELECTRIC HOME HEATING	6.5	19.3	20.7	19.9
PLUG-IN SPACE HEATER	9.0	8.1	9.4	8.9
BUILT-IN SPACE HEATER	9.9	17.0	17.5	17.2
PLUG-IN HUMIDIFIER	13.8	15.1	23.6	20.1
POWER HUMIDIFIER ON FURNACE	8.9	10.5	13.4	12.2
BLACK & WHITE TELEVISION	39.1	35.3	37.1	36.5
COLOUR TELEVISION	71.7	84.7	87.3	86.0

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

M20 APPLIANCE SATURATION STATISTICS IN NORTHWESTERN REGION

1980

LOCATION	RURAL FARM	RURAL NON-FARM	MUNICIPAL *	REGIONAL TOTAL*
TOTAL NO. OF RES. & FARM HOUSEHOLDS (ESTIMATED)	944	14644	51568	67156
ELECTRICAL APPLIANCES	PERCENT	PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ANY TYPE	90.6	88.7	96.6	94.8
MICROWAVE OVEN	4.9	10.7	11.1	10.9
COUNTER TOP BROILER OVEN	7.5	8.6	9.6	9.3
HOME FOOD FREEZER	82.1	73.6	64.6	66.8
ELECTRIC REFRIG, ANY TYPE	99.2	99.5	99.7	99.7
REFRIGERATOR - FREEZER	64.2	69.8	75.7	74.2
OTHER REFRIGERATOR	48.2	44.2	42.1	42.7
AUTOMATIC DISHWASHER	14.4	23.7	29.5	28.0
AUTOMATIC WASHER	47.4	60.5	68.5	66.5
OTHER WASHER	47.0	27.0	17.6	20.1
COMBINATION WASHER-DRYER	2.6	1.0	.8	.9
CLOTHES DRYER	62.9	67.4	69.0	68.6
ELECTRIC WATER HEATER	88.4	79.1	50.0	56.9
CENTRAL AIR CONDITIONING	.6	1.1	1.5	1.4
WINDOW AIR COND. - ONE	2.6	5.2	3.8	4.1
WINDOW AIR COND. - 2 OR MORE	-	.3	.4	.4
DEHUMIDIFIER	8.2	6.7	10.6	9.7
ELECTRIC BLANKET	12.6	10.4	13.4	12.8
ELECTRIC HOME HEATING	3.4	16.6	12.4	13.2
PLUG-IN SPACE HEATER	14.4	8.4	10.7	10.2
BUILT-IN SPACE HEATER	9.9	17.4	15.2	15.6
PLUG-IN HUMIDIFIER	13.9	13.4	14.5	14.3
POWER HUMIDIFIER ON FURNACE	7.2	7.3	11.6	10.6
BLACK & WHITE TELEVISION	37.6	35.9	35.1	35.3
COLOUR TELEVISION	63.4	77.3	84.8	82.9

*INCLUDING PARTICIPATING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

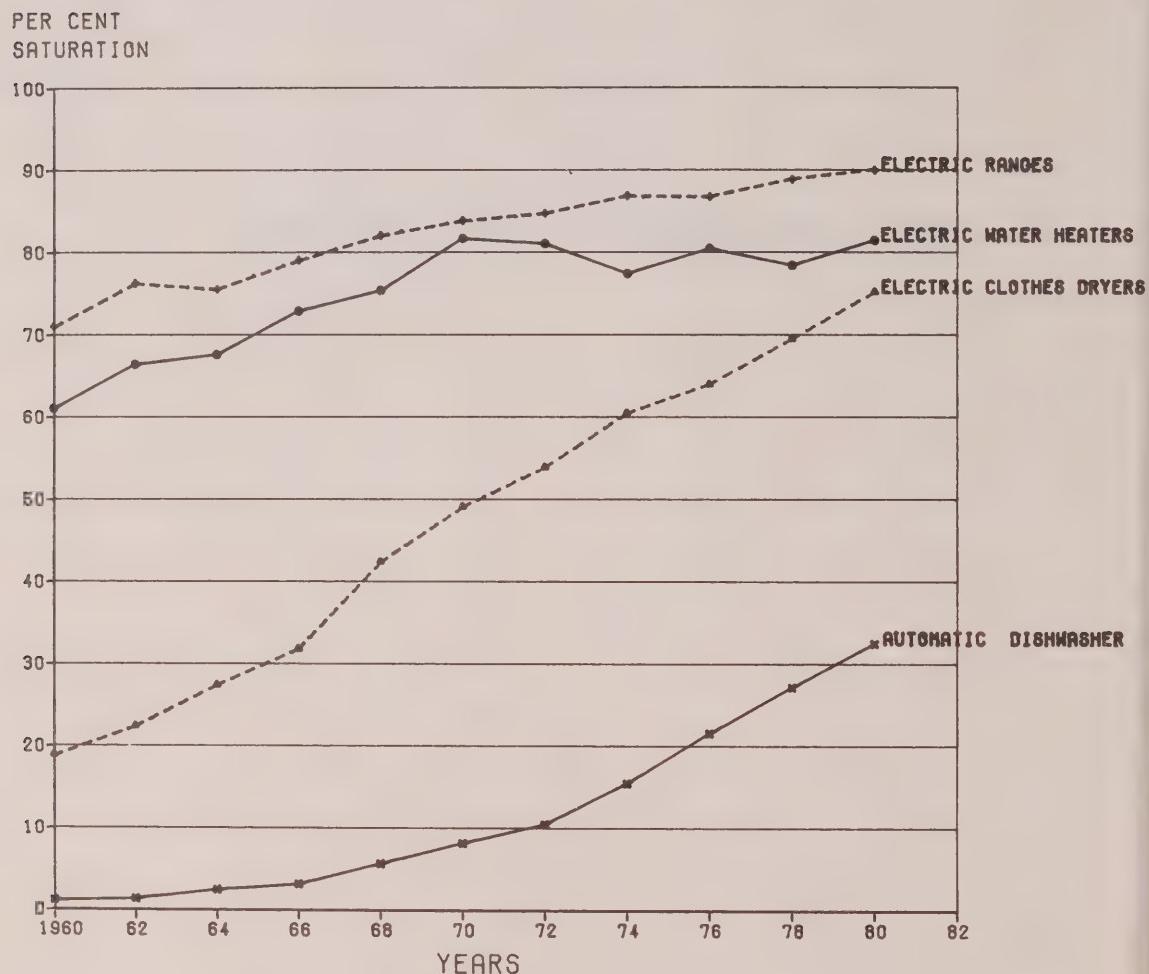
TRENDS IN THE OWNERSHIP OF SELECTED APPLIANCES

SECTION IV

TRENDS IN THE OWNERSHIP OF SELECTED APPLIANCES

FIGURE 1

TRENDS IN OWNERSHIP OF SELECTED APPLIANCES 1960-80
FOR CUSTOMERS SERVED DIRECTLY BY ONTARIO HYDRO

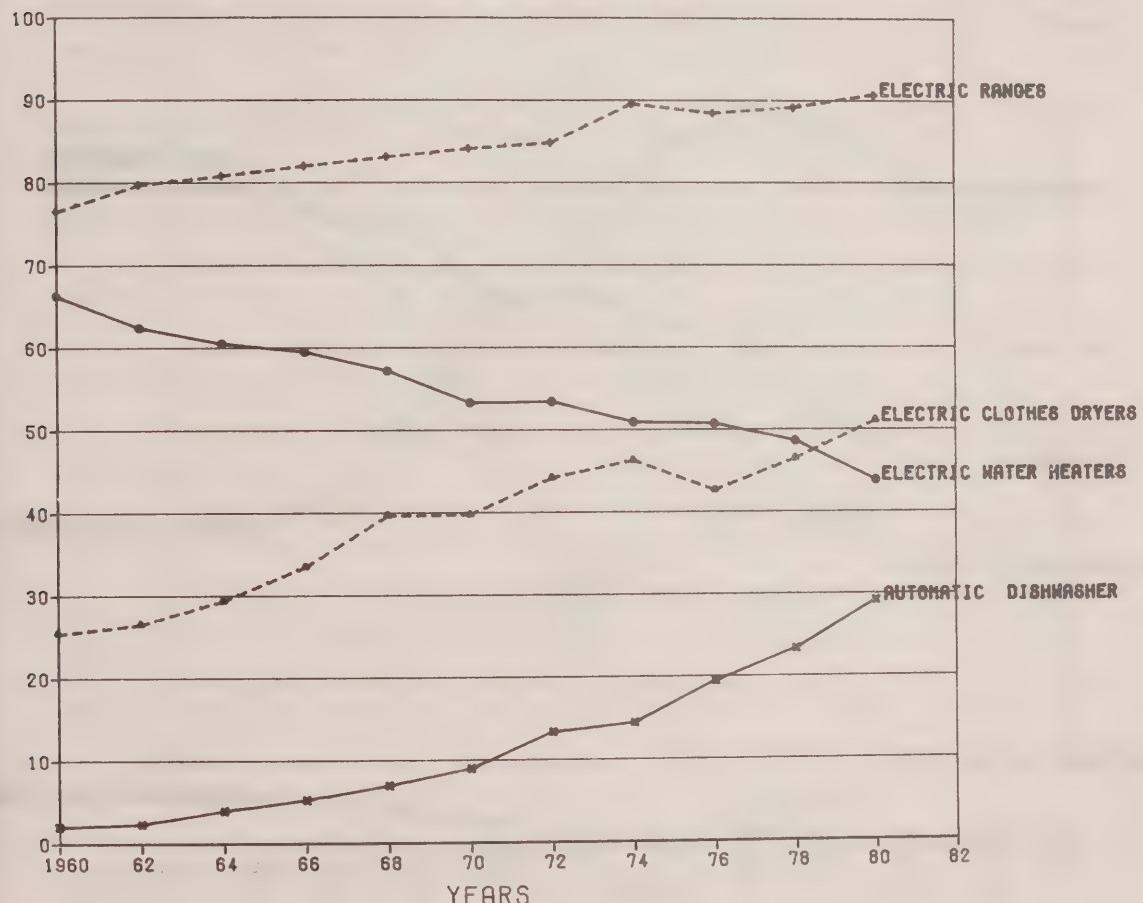


SOURCE: BIENNIAL SURVEYS 1960 TO 1980 INCLUSIVE

FIGURE 2

TRENDS IN OWNERSHIP OF SELECTED APPLIANCES 1960-80
FOR CUSTOMERS SERVED VIA MUN. ELECTRIC UTILITIES

PER CENT
SATURATION

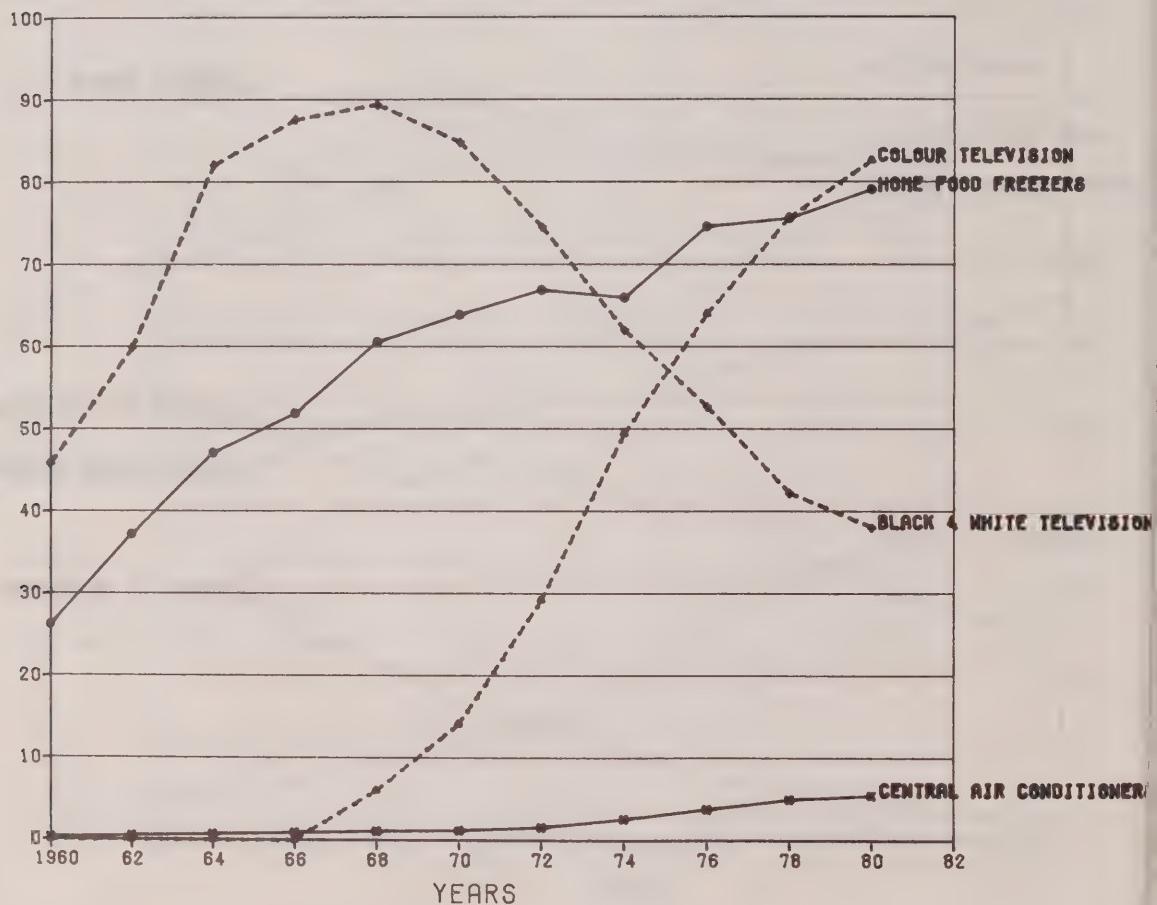


SOURCE: BIENNIAL SURVEYS 1960 TO 1980 INCLUSIVE

FIGURE 3

TRENDS IN OWNERSHIP OF SELECTED APPLIANCES 1960-80
FOR CUSTOMERS SERVED DIRECTLY BY ONTARIO HYDRO

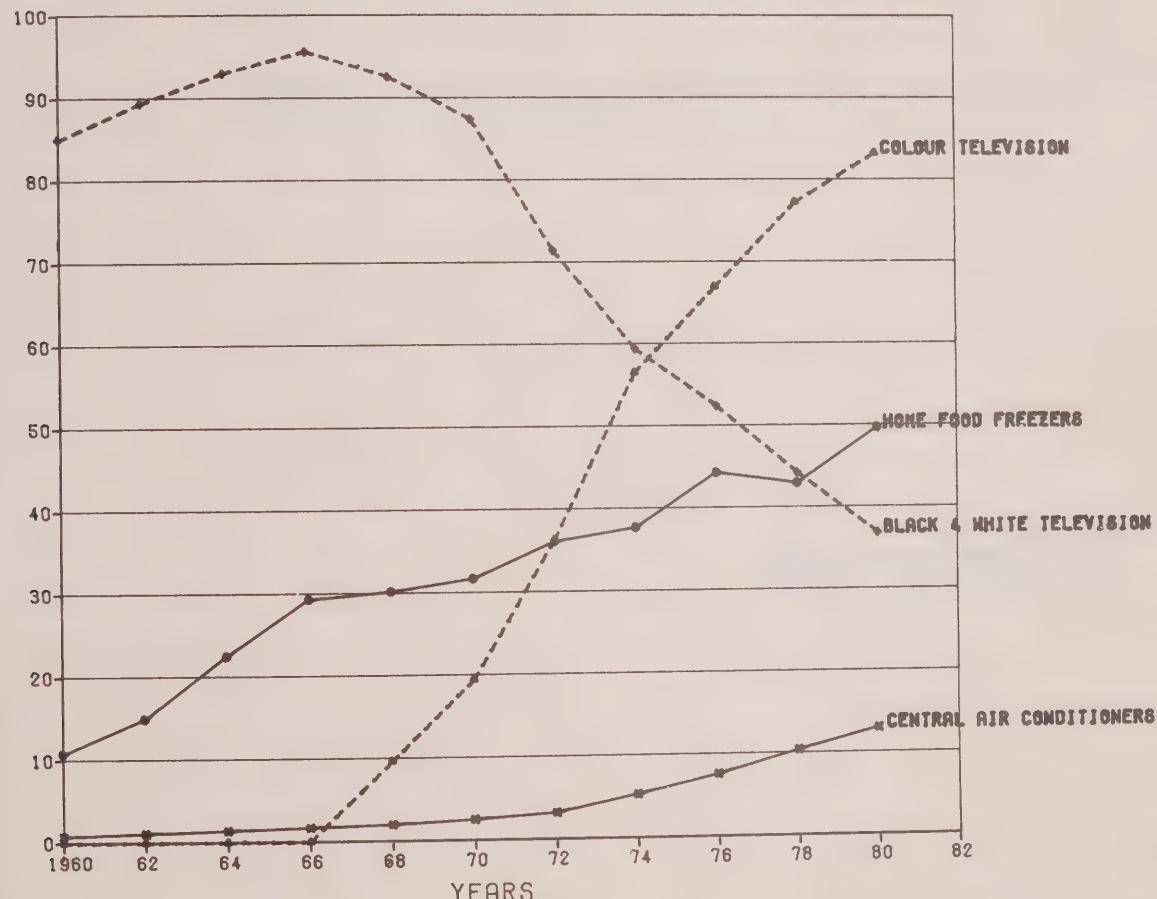
PER CENT
SATURATION



SOURCE: BIENNIAL SURVEYS 1960 TO 1980 INCLUSIVE

FIGURE 4
TRENDS IN OWNERSHIP OF SELECTED APPLIANCES 1960-80
FOR CUSTOMERS SERVED VIA MUN. ELECTRIC UTILITIES

PER CENT
SATURATION



SOURCE: BIENNIAL SURVEYS 1960 TO 1980 INCLUSIVE

CROSS-TABULATIONS OF SELECTED APPLIANCES

SECTION V

ONTARIO HOMES, BY TYPE OF HOME HEATING FUEL,
SHOWING THE SATURATION OF SELECTED APPLIANCES AND FACILITIES

M22	HOME HEATING SELECTED APPLIANCES & FACILITIES	MUNICIPAL		1980		
		FUEL	ELECTRICITY PERCENT	GAS PERCENT	OIL PERCENT	OTHER PERCENT
	ELECTRIC RANGE, ALL TYPES		97.9	81.5	95.1	83.4
	GAS RANGE, ALL TYPES		2.0	20.6	5.1	10.2
	ELECTRIC CLOTHES DRYER		59.5	59.6	70.5	57.8
	GAS CLOTHES DRYER		.8	12.8	1.3	1.6
	ELECTRIC WATER HEATER		86.9	22.9	87.8	80.8
	GAS WATER HEATER		4.1	73.4	5.1	5.8
	PLG-IN EL. BASEBOARD		7.4	13.2	14.7	12.1
	BLT-IN EL. BASEBOARD		49.8	5.5	8.5	36.7
	ELECTRIC HEAT PUMP		2.3	.6	.5	1.0
	ELECTRIC CEILING CABLE		6.7	.1	.2	4.5
	OIL STOVE OR SPACE HEATER		.4	.2	3.2	1.6
	GAS STOVE OR SPACE HEATER		.3	5.8	.5	.6
	WOOD STOVE OR SPACE HEATR		6.4	3.8	7.2	71.6
	ELECTRIC BLANKET		17.8	20.3	21.1	18.9
	EL. HUMIDIFIER, ALL TYPES		38.6	48.5	43.1	23.6
M21	RURAL NON-FARM					
	HOME HEATING SELECTED APPLIANCES & FACILITIES	FUEL	ELECTRICITY PERCENT	GAS PERCENT	OIL PERCENT	OTHER PERCENT
	ELECTRIC RANGE, ALL TYPES		97.7	72.5	92.9	86.6
	GAS RANGE, ALL TYPES		2.2	29.0	6.5	7.5
	ELECTRIC CLOTHES DRYER		81.2	65.6	75.4	62.1
	GAS CLOTHES DRYER		.8	14.7	.9	1.9
	ELECTRIC WATER HEATER		98.1	35.2	91.9	83.6
	GAS WATER HEATER		1.0	62.7	1.6	2.7
	PLG-IN EL. BASEBOARD		7.1	10.9	10.6	9.4
	BLT-IN EL. BASEBOARD		56.6	6.6	7.0	36.1
	ELECTRIC HEAT PUMP		3.0	.6	.5	.2
	ELECTRIC CEILING CABLE		5.6	.2	.2	1.7
	OIL STOVE OR SPACE HEATER		.5	.3	6.1	2.6
	GAS STOVE OR SPACE HEATER		.4	10.8	.5	.7
	WOOD STOVE OR SPACE HEATR		20.8	9.2	19.9	62.2
	ELECTRIC BLANKET		22.1	19.5	19.2	13.8
	EL. HUMIDIFIER, ALL TYPES		36.8	41.1	36.3	20.9

ONTARIO HOMES, BY TYPE OF FUEL USED FOR WATER HEATING
SHOWING THE SATURATION OF SELECTED APPLIANCES AND FACILITIES

SELECTED APPLIANCES & FACILITIES	WATER HEATING FUEL	MUNICIPAL		1980
		ELECTRICITY	GAS	OIL
		PERCENT	PERCENT	PERCENT
ELECTRIC RANGE, ALL TYPES		94.8	79.3	96.3
GAS RANGE, ALL TYPES		5.5	23.0	3.8
ELECTRIC DISHWASHER		30.7	35.9	36.1
ELECTRIC CLOTHES DRYER		68.9	59.0	60.5
GAS CLOTHES DRYER		1.6	15.2	1.1
HOME HEATED BY ELECTRICITY		22.0	1.5	2.9
HOME HEATED BY GAS		20.1	92.7	4.2
HOME HEATED BY OIL		53.6	4.5	89.9
HOME HEATED BY OTHER FUELS		1.3	.1	.2
AUTOMATIC WASHING MACHINE		66.8	73.2	-
CONVENTIONAL WASHER		18.7	13.8	75.1
				36.1

SELECTED APPLIANCES & FACILITIES	WATER HEATING FUEL	RURAL NON-FARM		1980
		ELECTRICITY	GAS	
		PERCENT	PERCENT	
ELECTRIC RANGE, ALL TYPES		93.8	68.7	94.9
GAS RANGE, ALL TYPES		6.0	33.0	3.2
ELECTRIC DISHWASHER		29.7	35.0	45.4
ELECTRIC CLOTHES DRYER		77.1	65.2	80.8
GAS CLOTHES DRYER		1.2	18.9	.8
HOME HEATED BY ELECTRICITY		27.5	1.7	.5
HOME HEATED BY GAS		7.9	90.1	1.1
HOME HEATED BY OIL		58.2	6.5	96.2
HOME HEATED BY OTHER FUELS		5.3	1.1	.8
AUTOMATIC WASHING MACHINE		64.5	75.8	-
CONVENTIONAL WASHER		27.8	18.3	92.2
				56.2

ONTARIO HOMES, BY TYPE OF FUEL USED FOR COOKING,
SHOWING THE SATURATION OF SELECTED APPLIANCES AND FACILITIES

M26 FUEL SELECTED APPLIANCES & FACILITIES	USED FOR COOKING	MUNICIPAL			1980
		ELECTRICITY	GAS	OTHER	
		PERCENT	PERCENT	PERCENT	
MICROWAVE OVEN		9.4	7.1	9.3	
ELECTRIC REFRIGERATOR		99.8	99.4	94.0	
SUPPLEMENTARY ELECTRIC HEATING		18.2	16.0	12.6	
WINDOW AIR CONDITIONER		20.8	23.5	9.9	
ELECTRIC DEHUMIDIFIER		25.0	17.3	10.4	
ELECTRIC HUMIDIFIER		45.5	35.9	18.7	
AUTOMATIC WASHER		64.2	57.7	27.5	
CONVENTIONAL WASHER		16.8	28.1	25.3	
COMBINATION WASHER-DRYER		1.2	1.5	1.7	
ELECTRIC CLOTHES DRYER		62.6	35.1	25.8	
ELECTRIC WATER HEATER		57.3	23.3	57.7	
OIL HOME HEATING		35.1	13.1	41.8	

M25 FUEL SELECTED APPLIANCES & FACILITIES	USED FOR COOKING	RURAL NON-FARM			1980
		ELECTRICITY	GAS	OTHER	
		PERCENT	PERCENT	PERCENT	
MICROWAVE OVEN		10.9	9.5	9.6	
ELECTRIC REFRIGERATOR		99.9	99.3	98.0	
SUPPLEMENTARY ELECTRIC HEATING		15.3	16.3	17.2	
WINDOW AIR CONDITIONER		12.3	14.8	5.6	
ELECTRIC DEHUMIDIFIER		24.7	15.3	6.6	
ELECTRIC HUMIDIFIER		37.4	28.9	11.6	
AUTOMATIC WASHER		64.9	45.4	23.2	
CONVENTIONAL WASHER		27.5	39.6	43.9	
COMBINATION WASHER-DRYER		1.5	2.4	5.6	
ELECTRIC CLOTHES DRYER		75.9	43.0	32.8	
ELECTRIC WATER HEATER		85.8	49.7	54.6	
OIL HOME HEATING		53.8	34.7	50.5	

ONTARIO HOMES, BY TYPE OF TENURE
SHOWING THE SATURATION OF SELECTED APPLIANCES AND FACILITIES

M28

MUNICIPAL

1980

SELECTED APPLIANCES & FACILITIES	TENURE	OWNER OCCUPIED	TENANT OCCUPIED
		PERCENT	PERCENT
ELECTRIC RANGE, ALL TYPES		87.5	94.0
GAS RANGE, ALL TYPES		13.7	6.3
HOME FOOD FREEZER		66.6	31.4
REFRIGERATOR-FREEZER		80.3	63.6
CONVENTIONAL REFRIGERATOR		45.5	44.0
ELECTRIC DISHWASHER		36.2	12.9
AUTOMATIC WASHER		76.0	17.8
CONVENTIONAL WASHER		19.0	14.5
COMBINATION WASHER-DRYER		1.2	1.3
ELECTRIC CLOTHES DRYER		71.0	18.5
GAS CLOTHES DRYER		8.1	1.3
ELECTRIC WATER HEATER		57.2	41.4
GAS WATER HEATER		39.9	28.6
SINGLE FAMILY DWELLING		96.4	25.8
APARTMENT OR FLAT		3.0	73.6
OTHER DWELLING TYPE		.7	.6

M27

RURAL NON-FARM

SELECTED APPLIANCES & FACILITIES	TENURE	OWNER OCCUPIED	TENANT OCCUPIED
		PERCENT	PERCENT
ELECTRIC RANGE, ALL TYPES		90.3	86.8
GAS RANGE, ALL TYPES		9.4	12.5
HOME FOOD FREEZER		78.2	66.7
REFRIGERATOR-FREEZER		75.7	69.0
CONVENTIONAL REFRIGERATOR		47.7	45.0
ELECTRIC DISHWASHER		31.2	20.2
AUTOMATIC WASHER		64.2	50.4
CONVENTIONAL WASHER		28.7	29.0
COMBINATION WASHER-DRYER		1.6	1.5
ELECTRIC CLOTHES DRYER		74.1	58.9
GAS CLOTHES DRYER		3.5	2.6
ELECTRIC WATER HEATER		82.7	77.6
GAS WATER HEATER		12.6	14.4
SINGLE FAMILY DWELLING		95.0	78.9
APARTMENT OR FLAT		.8	14.8
OTHER DWELLING TYPE		4.1	6.3

ONTARIO HOMES, BY AGE OF DWELLING,
SHOWING THE SATURATION OF SELECTED APPLIANCES AND FACILITIES

YEAR 1980

M30

MUNICIPAL

SELECTED APPLIANCES & FACILITIES	SINGLE FAMILY DWELLING UNITS BUILT	PERCENT					
		BEFORE 1956 1956	1956- 1960 1960	1961- 1965 1965	1966- 1970 1970	1971- 1975 1975	AFTER 1975
ELECTRIC RANGE, ALL TYPES		83.5	90.6	89.0	93.3	95.2	95.6
GAS RANGE, ALL TYPES		17.3	10.8	13.2	8.3	5.8	5.2
WATER HEATED BY ELECTRICITY		63.3	60.2	48.9	50.6	46.7	46.2
WATER HEATED BY GAS		33.8	36.6	49.1	46.5	50.3	51.8
HOME HEATED BY ELECTRICITY		3.9	4.5	13.2	23.2	26.7	29.4
HOME HEATED BY GAS		44.9	46.6	58.3	53.4	56.8	58.2
HOME HEATED BY OIL		49.1	47.5	26.6	19.7	12.9	8.8
HOME HEATED BY OTHER FUELS		.9	.6	1.0	1.3	1.3	1.5
CENTRAL AIR CONDITIONING		5.7	15.3	18.3	18.5	19.3	19.3

M29

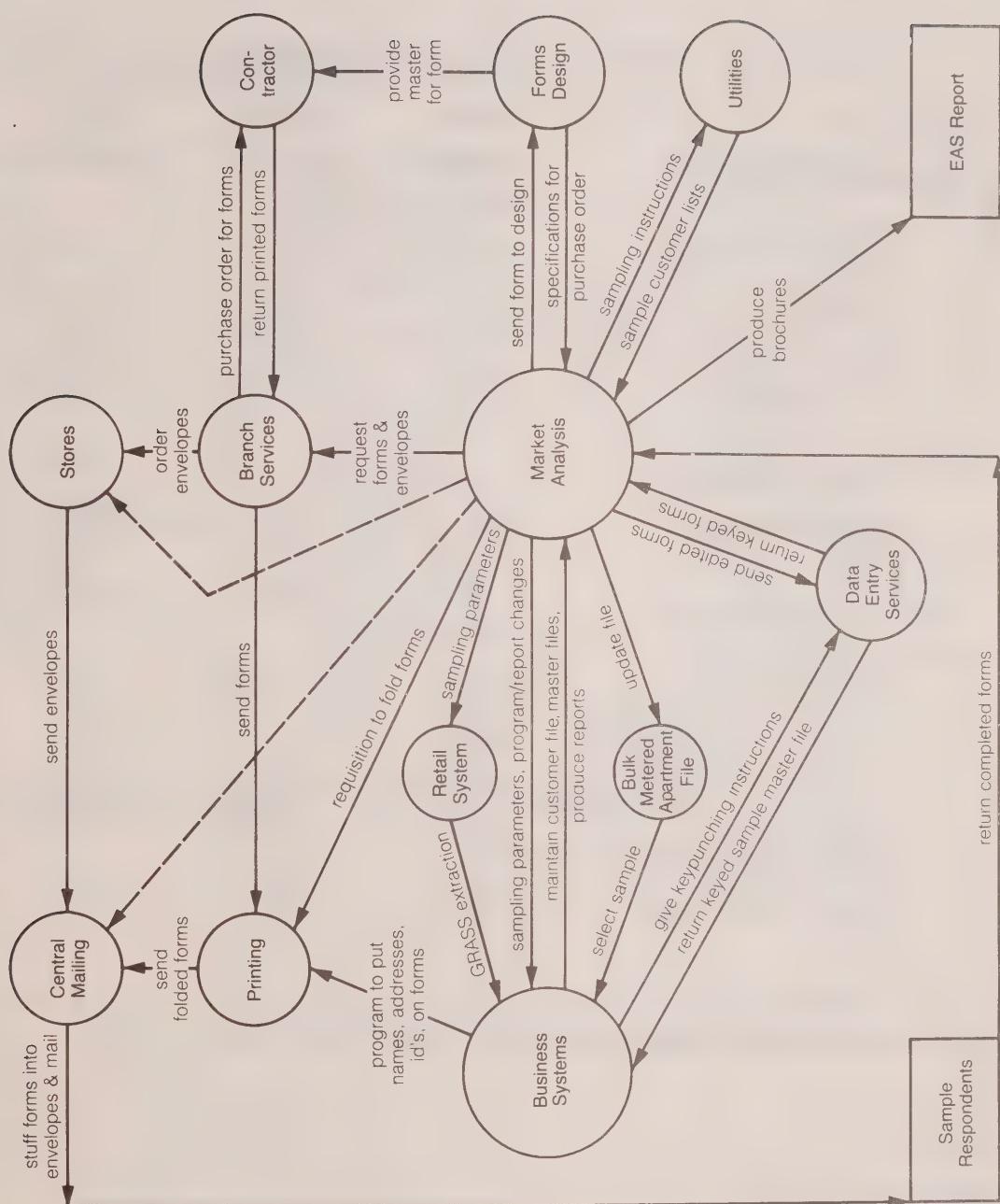
RURAL NON-FARM

SELECTED APPLIANCES & FACILITIES	SINGLE FAMILY DWELLING UNITS BUILT	PERCENT					
		BEFORE 1956 1956	1956- 1960 1960	1961- 1965 1965	1966- 1970 1970	1971- 1975 1975	AFTER 1975
ELECTRIC RANGE, ALL TYPES		85.1	89.9	90.8	93.4	95.7	95.8
GAS RANGE, ALL TYPES		13.8	10.1	9.4	6.5	4.7	4.1
WATER HEATED BY ELECTRICITY		80.7	82.4	81.6	82.6	83.4	84.8
WATER HEATED BY GAS		13.8	13.1	15.4	11.4	11.8	12.9
HOME HEATED BY ELECTRICITY		8.3	11.0	21.6	31.6	38.0	44.4
HOME HEATED BY GAS		21.8	19.1	20.6	14.8	14.7	14.6
HOME HEATED BY OIL		64.1	64.9	51.3	47.4	40.5	31.9
HOME HEATED BY OTHER FUELS		4.9	4.0	5.2	4.8	5.6	7.8
CENTRAL AIR CONDITIONING		1.9	3.8	5.0	6.6	7.9	9.4

APPENDICES

SECTION VI

WORKFLOW
ENERGY APPLICATION SURVEY



APPENDIX B

EVALUATION OF SUCCESSIVE BATCHES

	<u>Provincial</u>		
<u>Waves</u> =	<u>First</u>	<u>Second</u>	<u>Third</u>
<u>Net Sample Size</u> =	21,095	10,172	27,293
<u>Space Heating</u>	%	%	%
Wood	1.1	1.4	1.2
Oil	36.8	36.9	34.2
Gas	43.6	43.4	42.2
Electricity	9.7	11.3	13.1
Don't Know*	7.6	5.8	8.1
<u>Water Heating</u>	%	%	%
Electricity	54.2	55.5	51.7
Gas	37.4	32.3	32.2
Oil	3.2	1.5	2.0
Don't Know*	4.6	10.0	12.8
<u>Microwave Oven</u>	9.1	8.5	8.4
Home Food Freezer*	56.2	55.0	50.3
Automatic Dishwasher*	32.0	33.4	29.7
Automatic Washer*	66.9	65.3	56.9
Clothes Dryer*	61.8	62.1	53.2
Central Air Conditioning*	14.3	12.7	11.2
Dehumidifier*	25.5	24.4	22.1
Power Humidifier on furnace	21.1	22.3	25.8
Colour Television	72.0	70.4	72.2

* Bulk-metered tenants were not coded until the 3rd wave.

APPENDIX C



90996 (front)
new 80-12

energy application survey

Dear Superintendent:

The information requested on this questionnaire will help us plan for your future electricity requirements.
You can assist us by answering a few questions about your own apartment unit.

Please mark X to those appliances
you own or use in your dwelling

your kitchen

- electric range with
 - continuous clean
 - self-cleaning
 - no built-in cleaning features
 - gas stove or range, any type
 - other cooking stove or range
(describe) _____
 - without cooking stove or range
- Number of refrigerators in use** **is it frost free?**
- 2 or 3-door combination refrigerator-freezer **C** yes no
 - other electric refrigerator **D** yes no
- automatic electric dishwasher **number in use** _____
- home food 'deep' freezer
 - microwave oven
 - counter-top broiler oven _____

your own laundry equipment

- (Do not include coin-operated or any other laundry equipment used outside your home.)
- automatic washer
 - other electric washer (wringer, spin-dry, etc.)
 - combination washer-dryer (one unit)
 - electric clothes dryer
 - gas clothes dryer

44 fuel used in your water heater

- electricity 2 gas 3 oil
 - other or none 5 don't know
- 45 if you have a swimming pool heater, is it**
- electric 2 oil or gas
 - total solar 4 solar and electric
- 46 fuel used in your central furnace**
- oil 2 gas 3 electricity
 - wood 5 coal 6 solar 7 don't know

47 if you have space heater/stove, check below **number in use**

- A** oil _____
 - B** gas _____
 - C** wood _____
- if electric check type
- D plug-in baseboard(s)
 - E built-in baseboard(s)
 - F ceiling cable
 - G heat pump

59 other heating equipment

- 1 wood or gas fireplace
 - 2 other (describe) _____
- 60** Have you participated in the Canadian Home Insulation Program (CHIP)?
- 1 yes no
- 61 Since January 1, 1979, have you**
- 1 added insulation to the attic?
 - 2 added solar heating equipment?
changed your method of space heating?
from **3** oil **4** gas **5** electric
6 other
changed your method of water heating?
from **7** oil **8** gas **9** electric
A other

67 supplementary equipment

- In addition do you use* **number in use**
- A** central air conditioning
 - B** electronic air cleaner
 - C** electric power humidifier on furnace
 - D** electric blanket
 - E** window air conditioner ...
 - F** humidifier (plug-in) ...
 - G** dehumidifier (plug-in) ...

78 other electric appliances

- A** black and white television
- B** colour television
- C** car block heater
- D** in-car heater
- E** swimming pool filter
- F** electric sauna

88 do you live in a

- 1** single-family house (detached or attached)
- 2** apartment or flat (including duplex or triplex, etc.)
- 3** mobile home
- 4** other (describe) _____

89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

- | | | |
|----------------------------|----------------------------|----------------------------|
| Before 1956 | 1956-60 | 1961-65 |
| 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |
| 1966-70 | 1971-75 | After 1975 |
| 7 <input type="checkbox"/> | 8 <input type="checkbox"/> | 9 <input type="checkbox"/> |

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) _____

93 number of persons living your household?

We would also appreciate your co-operation in supplying additional information about the building which
you supervise by filling in the following section.

Building name		owner's name		
Address		address		
no. of suites	no. of floors	year of construction	space heating fuel	water heating fuel
Other major energy uses (please describe)				

Upon completion simply refold the questionnaire, insert in the return envelope provided for your convenience
and mail now while you are thinking about it.

Thank you for your co-operation

your hydro

90961 (front)
new 80-10

1980 energy application survey

- 22 your kitchen
 1 electric range with
 2 continuous clean
 3 self-cleaning
 no built-in cleaning features
 4 gas stove or range, any type
 5 other cooking stove or range
 (describe) _____
 6 without cooking stove or range

27 Number of refrigerators in use

- A 2 or 3-door combination *is it frost free?*
 refrigerator-freezer yes no
 B other electric refrigerator yes no

- 33
 A automatic electric dishwasher *number in use*
 B home food 'deep' freezer
 C microwave oven
 D counter-top broiler over

- 40 your own laundry equipment (Do not include coin-operated or any other laundry equipment used outside your home.)

- 5 automatic washer
 6 other electric washer (wringer, spin-dry, etc)
 7 combination washer-dryer (one unit)
 B electric clothes dryer
 9 gas clothes dryer

- 44 fuel used in your water heater
 1 electricity 2 gas 3 oil
 4 other or none 5 don't know

- 45 if you have a swimming pool heater, is it
 1 electric 2 oil or gas
 3 total solar 4 solar and electric

- 46 fuel used in your central furnace
 1 oil 2 gas 3 electricity
 4 wood 5 coal 6 solar
 7 don't know

- 47 if you have space heater/stove,
 check below *number in use*

- A oil
 B gas
 C wood
 if electric, check type
 D plug-in baseboard(s)
 E built-in baseboard(s)
 F ceiling cable
 G heat pump

- 59 other heating equipment

- 1 wood or gas fireplace
 2 other (describe) _____

- S1 What is the approximate temperature at which your thermostat is set, in the heating season, during the given time periods (in either °C or °F)?

- 1 day (8 am to 6 pm) °C °F
 2 evening (6 pm to 11 pm) °C °F
 3 night (11 pm to 8 am) °C °F

- S2 In order to properly estimate the energy used in home heating and cooling please indicate what proportion of time over the past 12 months that your home was not occupied by anyone. This includes weekends and summer and winter holidays.

Heating Season Cooling Season

- | | | |
|-----------------|--------------------------|--------------------------|
| 1 Less than 5% | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 5-25% | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 25-50% | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 more than 50% | <input type="checkbox"/> | <input type="checkbox"/> |

- 60 Did you participate in the Canadian Home Insulation Program (CHIP)?

1 yes no

- 61 since January 1, 1979, have you
 1 added insulation to the attic?
 2 added solar heating equipment?
 changed your method of space heating?
 from 3 oil 4 gas 5 electric
 6 other
 changed your method of water heating?
 from 7 oil 8 gas 9 electric
 A other

67 supplementary equipment
in addition do you use

- | | <i>number in use</i> |
|---|----------------------|
| A <input type="checkbox"/> central air conditioning | <input type="text"/> |
| B <input type="checkbox"/> electronic air cleaner | <input type="text"/> |
| C <input type="checkbox"/> electric power humidifier on furnace | <input type="text"/> |
| D <input type="checkbox"/> electric blanket | <input type="text"/> |
| E <input type="checkbox"/> window air conditioner | <input type="text"/> |
| F <input type="checkbox"/> humidifier (plug-in) | <input type="text"/> |
| G <input type="checkbox"/> dehumidifier (plug-in) | <input type="text"/> |

78 other electric appliances

- | | |
|---|----------------------|
| A <input type="checkbox"/> black and white television | <input type="text"/> |
| B <input type="checkbox"/> colour television | <input type="text"/> |
| C <input type="checkbox"/> time-controlled car block heater | <input type="text"/> |
| D <input type="checkbox"/> other car block heater | <input type="text"/> |
| E <input type="checkbox"/> swimming pool filter | <input type="text"/> |
| F <input type="checkbox"/> electric sauna | <input type="text"/> |

88 do you live in a

- | | |
|--|----------------------|
| 1 <input type="checkbox"/> single-family house (detached or attached) | <input type="text"/> |
| 2 <input type="checkbox"/> apartment or flat (including duplex or triplex,
etc) | <input type="text"/> |
| 3 <input type="checkbox"/> mobile home | <input type="text"/> |
| 4 <input type="checkbox"/> other (describe) _____ | <input type="text"/> |

- 89 do you 1 own? 2 rent?

90 when was your dwelling unit built?

Before 1956	1956-60	1961-65
4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
1966-70	1971-75	After 1975
7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

91 total number of rooms in your dwelling?

(Do not include bathrooms, halls and unfinished rooms) _____

93 number of persons living in your household? _____

S3 number of persons in each of the following groups

- | | |
|--|----------------------|
| A <input type="checkbox"/> preschool children | <input type="text"/> |
| B <input type="checkbox"/> attending school full-time
(including university attendance) | <input type="text"/> |
| C <input type="checkbox"/> working full-time outside home | <input type="text"/> |
| D <input type="checkbox"/> working inside home (including home makers) | <input type="text"/> |
| E <input type="checkbox"/> retired | <input type="text"/> |
| F <input type="checkbox"/> unemployed and/or looking for work | <input type="text"/> |
| G <input type="checkbox"/> other (describe) _____ | <input type="text"/> |

S4 do you have any pets?

- | | |
|-----------------------------------|----------------------|
| 1 <input type="checkbox"/> cat(s) | <input type="text"/> |
| 2 <input type="checkbox"/> dog(s) | <input type="text"/> |
| 3 <input type="checkbox"/> other | <input type="text"/> |

- S5 For 1979, please indicate the total annual income (before taxes), from all sources, for everyone in your household. (This information will help us to relate appliance ownership and income levels. Be assured that no data will be used on an individual basis, but will be used for forecasting purposes only.)

- | | |
|--|----------------------|
| 1 <input type="checkbox"/> Under \$10,000 | <input type="text"/> |
| 2 <input type="checkbox"/> \$10,000 - 14,999 | <input type="text"/> |
| 3 <input type="checkbox"/> \$15,000 - 19,999 | <input type="text"/> |
| 4 <input type="checkbox"/> \$20,000 - 24,999 | <input type="text"/> |
| 5 <input type="checkbox"/> \$25,000 - 29,999 | <input type="text"/> |
| 6 <input type="checkbox"/> \$30,000 - 34,999 | <input type="text"/> |
| 7 <input type="checkbox"/> Over \$35,000 | <input type="text"/> |

CAZON
EP20
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**residential
appliance
survey
1983**

**marketing development division
marketing branch**



FORWARD

This report provides the results of the twelfth "Residential Appliance Survey" (formerly called the Energy Application Survey).

The survey, which was conducted during the months of June and July, 1983, was produced with the assistance and cooperation of the participating Municipal Utilities and/or their billing centres.

January, 1985

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GENERAL

SECTION I

COMMENTS ABOUT THE 1983 RESIDENTIAL APPLIANCE SURVEY

The 1983 Residential Survey represents the last time apartment dwellings will be included in the residential sector. In 1984, the residential and commercial sectors were redefined and apartment dwellings were placed in the commercial sector.

The data collected in the 1983 survey has been presented in the same formats used in prior surveys to permit comparison against similarly reported historical data. It was not feasible, however, to present the data for the newly defined residential sector due to the manner in which the data was collected and the limitations of the existing computer program.

Users of the 1983 data should recognize that the survey had a response rate of about 36% compared to 45% in 1980 and 65% in 1978. Delays in conducting the survey caused the questionnaires to be distributed in June and July, when many summer vacations are taken. It is felt that this was the primary reason for the lower response rate in 1983. Also, the absence of a follow-up mailing to non-responders in 1980 and 1983 explains most of the decline from the higher response rate of 1978.

In the 1983 survey, a problem was encountered with the question about the type of main home heating fuel. As a significant number of respondents selected two or three types of main home heating fuel, the saturation data produced differed considerably from past surveys and other external surveys conducted in 1983. Accordingly, the home heating fuel saturation data have not been included in the report.

The 1983 survey question dealing with water heaters also encountered difficulties. The number of respondents failing to provide an answer rose from 11.2% in 1980 to 15.1% in 1983.

RESULTS OF THE 1983 RESIDENTIAL APPLIANCE SURVEY

Provincial Results:

- (a) From 1980 to 1983, saturations increased significantly for the following appliances:

Electric ranges - any type	7.1%
Microwave ovens	4.8%
Automatic dishwashers	4.9%
Automatic washers	7.6%
Electric clothes dryer	5.8%
Colour televisions	3.4%

- (b) Water Heating saturations by fuel for 1980 and 1983 were:

	<u>1980</u> %	<u>1983</u> %
Electric	49.6	44.8
Gas	36.6	36.1
Oil	2.1	3.3
Other/None	0.5	0.7
* Not Known	10.5	10.1
* No Answer	0.7	5.0
	<hr/>	<hr/>
	100.0	100.0

* The Not Known and No Answer percentages represent 15.1% of the water heating total in 1983. The Not Known percentages were more prevalent for those respondents living in apartments.

Regional Results:

In 1983, Niagara region was dissolved. The municipalities and areas in Niagara region were transferred to Central and Western regions as follows:

- 21 municipalities and 2 areas became part of Central region
- 25 municipalities and 3 areas became part of Western region.

This annexation has prevented meaningful comparisons with previous years for Central and Western regions.

Appliance saturations that showed significant change in 1983 compared to the 1980 results for the other regions were as follows:

		Increase or -Decrease %
Georgian Bay	Electric ranges	5.3
	Microwave ovens	4.7
	Countertop broiler ovens	3.6
	Automatic dishwashers	7.1
	Automatic washers	9.3
	Colour televisions	5.4
Eastern	Electric ranges	3.5
	Microwave ovens	5.4
	Automatic dishwashers	3.4
	Automatic washers	8.0
	Electric clothes dryer	3.6
Northeastern	Microwave ovens	5.8
	Automatic dishwashers	4.9
	Automatic washers	6.7
Northwestern	Electric ranges	4.2
	Microwave ovens	20.3
	Automatic dishwashers	3.9
	Automatic washers	6.7
	Colour televisions	5.3

Rate Class Results:

The Residential Appliance Survey includes residential customers who are supplied directly or indirectly by Ontario Hydro as well as non-Hydro residential customers who are supplied from other sources. The municipal residential group includes residential rate class and general rate class customers. The bulk metered apartment dwellers fall into the general or commercial/industrial rate class category. The rural customers fall into the following three rate classes:

1. Residential - R1 - customers in high density zones
2. Residential - R2 - customers in normal density zones
3. Farm customers.

In 1983 the farm customer's saturation for food freezers at 85% was 36% higher than the municipal residential saturation of 49%. This is down slightly from the 39% difference reported in 1980. Also, in 1983, central air conditioning showed a municipal residential saturation of 15% versus a 4% saturation for farm customers. This difference was maintained in the 1980 survey.

PROVINCIAL SATURATION STATISTICS OF SELECTED APPLIANCES

SECTION II

APPLIANCE SATURATION BY REGION

REGION HOUSEHOLDS AS OF DEC 31, 1983	WESTERN 600365	CENTRAL 1577618	GEORGIAN BAY 185995	NORTH EASTERN		NORTH WESTERN 77244	* PROVINCIAL TOTAL 3083212
				%	%		
APPLIANCES	%	%	%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	97.5	98.4	98.9	99.0	99.1	99.0	98.4
MICROWAVE OVEN	13.9	12.3	15.5	12.4	15.1	20.3	13.3
COUNTER TOP BROILER OVEN	13.1	13.6	14.8	13.0	9.6	11.9	13.2
COUNTER TOP CONVECTION OVEN	2.4	2.7	2.8	2.6	2.4	2.3	2.6
GAS RANGE	16.7	7.6	5.2	3.3	3.2	3.5	8.3
FOOD FREEZER	60.6	46.9	72.4	58.7	66.3	66.5	55.2
ELECTRIC REFRIG - ANY TYPE	98.6	97.9	98.5	98.6	97.5	98.3	98.2
FROST FREE REFRIGERATOR	74.5	67.0	73.8	69.3	69.4	73.4	69.7
OTHER REFRIGERATOR	41.5	43.6	41.0	42.7	40.9	39.8	42.6
AUTOMATIC WASHER	70.1	59.9	68.8	63.7	72.5	73.2	64.5
COMPACT WASHER WITH SPIN DRY	8.0	7.1	14.4	9.8	10.5	7.5	8.5
WRINGER WASHER	7.2	4.9	8.0	5.1	7.8	8.6	5.9
ELECTRIC CLOTHES DRYER	61.5	52.5	72.6	63.2	71.3	68.7	59.2
AUTOMATIC DISHWASHER	34.5	34.0	37.7	36.0	31.9	31.9	34.5
ELECTRIC WATER HEATER	36.3	35.6	73.6	61.2	61.4	52.7	44.8
GAS WATER HEATER	52.6	38.5	19.3	19.0	26.8	38.2	36.1
CENTRAL AIR CONDITIONING	15.2	16.3	3.3	10.1	1.2	1.2	12.6
WINDOW AIR COND. - ONE	28.4	17.8	10.6	17.0	6.9	7.9	17.3
WINDOW AIR COND. - 2 OR MORE	5.5	3.4	1.9	2.8	.6	.6	3.4
BLACK AND WHITE TELEVISION	39.8	35.4	38.0	40.0	38.7	38.0	37.6
COLOUR TELEVISION	88.3	85.7	87.8	85.2	87.2	88.2	86.5

* INCLUDING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

APPLIANCE SATURATION BY RATE CLASS

RATE CLASS	APPLIANCE SATURATION BY RATE CLASS				* MUNICIPAL RESIDENTIAL	* PROVINCIAL TOTAL
	R1	U	R	A		
HOUSEHOLDS AS OF DEC 31, 1983	229314	197534	109516	536424	2546788	3083212
APPLIANCES	%	%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	98.3	98.2	98.0	98.4	98.4	98.4
MICROWAVE OVEN	17.0	16.6	15.3	16.5	12.4	13.3
COUNTER TOP BROILER OVEN	12.8	11.5	10.6	11.9	13.5	13.2
COUNTER TOP CONVECTION OVEN	2.6	2.8	2.7	2.7	2.6	2.6
GAS RANGE	7.4	8.2	10.9	8.4	6.3	8.3
FOOD FREEZER	71.1	78.6	84.9	76.7	49.3	55.2
ELECTRIC REFRIG - ANY TYPE	98.5	98.6	97.9	98.4	98.1	99.2
FROST FREE REFRIGERATOR	77.9	72.9	73.6	75.2	68.2	69.7
OTHER REFRIGERATOR	37.2	42.2	42.5	42.6	43.2	42.6
AUTOMATIC WASHER	73.6	69.2	68.7	71.0	62.6	64.5
COMPACT WASHER WITH SPIN DRY	11.9	15.2	13.6	13.5	7.1	8.5
WRINGER-WASHER	7.8	11.2	15.2	10.6	4.6	5.9
ELECTRIC CLOTHES DRYER	74.6	74.0	72.9	74.1	55.1	59.2
AUTOMATIC DISHWASHER	37.8	35.1	39.0	37.0	33.8	34.5
ELECTRIC WATER HEATER	67.5	85.1	84.3	77.4	35.8	44.8
GAS WATER HEATER	26.0	7.2	8.7	15.5	41.8	36.1
CENTRAL AIR CONDITIONING	6.5	5.2	3.6	5.5	14.8	12.8
WINDOW AIR COND. - ONE	13.0	11.2	10.2	11.8	18.6	17.3
WINDOW AIR COND. - 2 OR MORE	2.1	1.6	2.3	1.9	3.8	3.4
BLACK AND WHITE TELEVISION	40.0	41.8	42.5	41.2	36.5	37.6
COLOUR TELEVISION	89.7	84.9	81.8	86.5	86.5	86.5

* INCLUDING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

APPLIANCE SATURATION BY ANNUAL KWH-USE BLOCKS

H7

1983

SAMPLE SIZE	MUNICIPAL RESIDENTIAL		10500- 12499.9		12500- 14499.9		14500- AND OVER	
	ANNUAL ENERGY IN KWH	%	%	%	%	%	%	%
2500- 4499.9	4500- 6499.9	6500- 8499.9	6500- 8499.9	8500- 10499.9	10500- 12499.9	12500- 14499.9	14500- 16499.9	14500- AND OVER
1326	2123	2491	2163	1636	1186	3840		
APPLIANCES								
ELECTRIC RANGE, ANY TYPE	74.6	80.6	86.3	89.9	90.7	92.5	91.9	
MICROWAVE OVEN	7.2	8.7	13.3	14.7	18.7	19.1	23.7	
COUNTER TOP BROILER OVEN	13.7	14.4	14.5	13.5	13.7	13.4	14.3	
COUNTER TOP CONVECTION OVEN	2.3	2.8	2.5	2.3	2.3	2.7	3.7	
GAS RANGE	20.9	15.3	10.0	7.4	5.3	4.0	3.7	
FOOD FREEZER	36.7	54.6	61.2	65.7	68.7	72.9	70.7	
ELECTRIC REFRIGERATOR, ANY TYPE	98.0	98.4	98.5	98.5	99.0	99.1	98.9	
FROST FREE REFRIGERATOR	60.6	73.3	78.2	80.7	84.1	84.7	85.2	
OTHER REFRIGERATOR	43.7	36.0	35.9	38.0	38.1	36.9	36.7	
AUTOMATIC WASHER	52.4	69.2	78.2	83.4	84.5	88.8	89.2	
COMPACT WASHER WITH SPIN DRY	12.0	10.7	8.8	7.4	7.5	5.2	5.8	
WRINGER-WASHER	11.5	9.9	6.8	5.5	4.3	3.4	2.9	
CLOTHES DRYER	50.7	67.6	78.8	81.6	84.3	87.7	88.9	
AUTOMATIC DISHWASHER	14.4	24.9	36.6	42.1	49.6	55.7	59.5	
ELECTRIC WATER HEATER	22.0	26.5	34.6	46.2	55.2	62.6	74.9	
GAS WATER HEATER	65.5	66.9	60.3	48.8	39.1	31.6	21.2	
CENTRAL AIR CONDITIONING	4.2	7.2	11.2	13.4	16.6	19.1	18.4	
WINDOW AIR CONDITIONER - ONE	17.8	19.0	19.8	18.9	17.7	19.8	16.3	
WINDOW AIR CONDITIONER - 2 OR MORE	2.3	2.9	4.2	3.9	6.2	4.6	5.1	
BLACK & WHITE TELEVISION	33.9	34.1	37.9	37.0	41.5	44.4	43.7	
COLOUR TELEVISION	81.1	88.7	90.4	91.5	92.4	93.6	92.9	

APPLIANCE SATURATION BY ANNUAL KWH-USE BLOCKS

M8

1983

SAMPLE SIZE	ANNUAL ENERGY IN KWH		RURAL RESIDENTIAL R1 & R2		10500- 8499.9		10500- 12499.9		12500- 14499.9		14500- AND OVER	
	2500-	4500-	6500- 8499.9	1295	1481	1566	1359	1099	1099	4585	42.5	91.1
APPLIANCES	%	%	%	%	%	%	%	%	%	%	%	%
ELECTRIC RANGE, ANY TYPE	70.6	76.2	84.2									
MICROWAVE OVEN	10.0	9.1	11.6									
COUNTER TOP BROILER OVEN	12.7	12.2	13.2									
COUNTER TOP CONVECTION OVEN	1.7	2.0	2.6									
GAS RANGE	23.8	17.3	11.8									
FOOD FREEZER	53.6	67.1	75.8									
ELECTRIC REFRIGERATOR, ANY TYPE	97.7	98.7	98.2									
FROST FREE REFRIGERATOR	55.5	61.9	69.1									
OTHER REFRIGERATOR	46.9	44.3	42.5									
AUTOMATIC WASHER	39.5	49.7	58.6									
COMPACT WASHER WITH SPIN DRY	23.5	23.2	20.5									
WRINGER WASHER	18.4	18.5	13.4									
CLOTHES DRYER	48.9	61.4	71.4									
AUTOMATIC DISHWASHER	11.9	15.6	22.7									
ELECTRIC WATER HEATER	55.0	60.7	68.2									
GAS WATER HEATER	32.6	30.5	24.1									
CENTRAL AIR CONDITIONING	1.0	2.5										
WINDOW AIR CONDITIONER - ONE	10.0	11.4	10.3									
WINDOW AIR CONDITIONER - 2 OR MORE	1.3	.9	1.5									
BLACK & WHITE TELEVISION	36.1	36.4	38.1									
COLOUR TELEVISION	75.0	81.9	84.7									

APPLIANCE SATURATION BY RATE CLASS
USING OTHER FORMS OF ENERGY

1983

RATE CLASS	R U R A L		* MUNICIPAL RESIDENTIAL	* PROVINCIAL TOTAL
	RESIDENTIAL R1 & R2	FARM		
HOUSEHOLDS AS OF DEC 31, 1983	426908	109516	2546788	3083212
<hr/>				
APPLIANCES	%	%	%	%
GAS RANGE OR RANGETTE	7.8	10.9	8.3	8.3
GAS CLOTHES DRYER	3.7	3.9	5.9	5.4
GAS WATER HEATING	17.3	8.7	41.8	36.1
OIL WATER HEATING	4.2	3.9	3.1	3.3
OTHER FUEL FOR WATER HEATING OR NO WATER HEATING	1.2	1.5	.6	.7
WTR HEATING FUEL NOT KNOWN	.6	.3	12.7	10.1
WTR HEATING FUEL NO ANSWER	1.0	1.3	6.0	5.0

* INCLUDING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

REGIONAL SATURATION STATISTICS OF SELECTED APPLIANCES

SECTION III

REGION	HOUSEHOLDS AS OF DEC 31, 1983	WESTERN	CENTRAL	GEORGIAN BAY	EASTERN	NORTH EASTERN	NORTH WESTERN	* PROVINCIAL TOTAL
APPLIANCES		%	%	%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	97.8	98.4	99.0	99.2	99.4	99.0	98.4	98.4
MICROWAVE OVEN	12.9	11.7	15.9	11.6	13.5	22.0	12.4	12.4
COUNTER TOP BROILER OVEN	13.7	13.6	15.5	13.9	9.7	12.5	13.5	13.5
COUNTER TOP CONVECTION OVEN	2.2	2.7	3.3	2.6	2.6	2.7	2.6	2.6
GAS RANGE	15.7	8.2	5.3	2.2	3.3	2.2	8.3	8.3
FOOD FREEZER	54.7	44.3	66.0	50.6	60.9	64.7	49.3	49.3
ELECTRIC REFRIG - ANY TYPE	98.6	97.8	98.5	98.8	97.6	98.5	98.2	98.2
FROST FREE REFRIGERATOR	72.3	65.9	74.4	67.8	69.8	75.4	68.2	68.2
OTHER REFRIGERATOR	42.5	43.9	41.2	42.8	42.2	40.4	43.2	43.2
AUTOMATIC WASHER	68.9	59.0	70.7	60.8	72.7	76.2	62.6	62.6
COMPACT WASHER WITH SPIN DRY	7.0	6.6	12.2	7.7	8.5	5.0	7.1	7.1
WRINGER-WASHER	6.0	4.4	5.5	2.7	5.4	6.7	4.6	4.6
ELECTRIC CLOTHES DRYER	57.8	50.6	71.3	58.2	67.5	68.6	55.1	55.1
AUTOMATIC DISHWASHER	32.6	33.5	38.8	35.8	32.5	33.1	33.8	33.8
ELECTRIC WATER HEATER	26.6	31.7	55.5	51.7	54.1	40.6	35.8	35.8
GAS WATER HEATER	60.5	41.0	35.9	23.4	31.2	51.0	41.8	41.8
CENTRAL AIR CONDITIONING	16.9	17.0	3.4	12.6	1.3	1.5	14.8	14.8
WINDOW AIR COND. - ONE	25.2	18.3	13.3	18.5	7.4	8.4	18.8	18.8
WINDOW AIR COND. - 2 OR MORE	6.0	3.5	2.2	3.4	1.1	.9	3.6	3.6
BLACK AND WHITE TELEVISION	38.8	35.1	37.0	38.0	38.2	36.7	36.5	36.5
COLOUR TELEVISION	88.7	85.6	90.1	82.2	87.8	90.3	86.5	86.5

* INCLUDING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

APPLIANCE SATURATION BY REGION
RURAL R1 & R2 RESPONDENTS

1983

REGION	HOUSEHOLDS AS OF DEC 31, 1983	WESTERN	CENTRAL	GEORGIAN BAY		NORTH EASTERN	NORTH WESTERN	PROVINCIAL TOTAL
				70189	104345			
APPLIANCES	%	%	%	%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	97.0	99.3	98.9	98.8	98.8	98.8	98.5	98.5
MICROWAVE OVEN	17.1	20.6	15.8	14.8	16.8	16.9	16.8	16.8
COUNTER TOP BROILER OVEN	11.8	15.1	15.4	10.7	9.6	10.7	12.2	12.2
COUNTER TOP CONVECTION OVEN	3.3	3.0	2.4	2.8	2.1	1.3	2.7	2.7
GAS RANGE	20.2	3.8	5.0	5.5	3.2	6.4	7.8	7.8
FOOD FREEZER	73.8	77.8	74.7	76.2	71.5	70.2	74.6	74.6
ELECTRIC REFRIG - ANY TYPE	98.9	99.4	98.8	98.6	97.4	97.8	98.6	98.6
FROST FREE REFRIGERATOR	81.6	80.7	74.3	74.2	69.2	69.4	75.6	75.6
OTHER REFRIGERATOR	37.8	39.9	39.8	41.3	39.1	38.4	39.6	39.6
AUTOMATIC WASHER	73.9	72.2	67.3	72.1	72.7	66.9	71.6	71.6
COMPACT WASHER WITH SPIN DRY	11.2	13.6	16.1	14.3	12.4	12.5	13.4	13.4
WRINGER WASHER	9.4	9.3	8.6	9.0	9.8	12.3	9.4	9.4
ELECTRIC CLOTHES DRYER	71.2	76.8	73.2	76.2	75.4	69.5	74.3	74.3
AUTOMATIC DISHWASHER	38.7	41.3	35.6	37.5	31.5	29.7	36.5	36.5
ELECTRIC WATER HEATER	58.6	83.7	86.2	82.3	68.5	79.3	75.7	75.7
GAS WATER HEATER	36.1	9.4	7.9	10.2	23.0	10.1	17.3	17.3
CENTRAL AIR CONDITIONING	12.4	8.6	3.3	5.1	1.1	1.0	5.9	5.9
WINDOW AIR COND. - ONE	17.4	12.6	9.5	14.6	6.4	6.7	12.2	12.2
WINDOW AIR COND. - 2 OR MORE	3.9	2.2	1.6	1.5	.1	.7	1.8	1.8
BLACK AND WHITE TELEVISION	42.0	38.6	38.1	44.4	39.2	41.2	40.9	40.9
COLOUR TELEVISION	88.9	89.2	87.0	86.4	86.9	83.9	87.4	87.4

APPLIANCE SATURATION BY REGION
RURAL FARM RESPONDENTS

1983

REGION	WESTERN	CENTRAL	GEORGIAN BAY	EASTERN	NORTH EASTERN	NORTH WESTERN	PROVINCIAL TOTAL
HOUSEHOLDS AS OF DEC 31, 1983	44311	18000	19490	23946	2809	960	109516
APPLIANCES	%	%	%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	97.1	98.9	98.9	98.0	98.7	99.0	98.0
MICROWAVE OVEN	17.2	17.9	15.2	12.0	14.1	9.9	15.3
COUNTER TOP BROILER OVEN	9.9	10.5	10.6	12.4	8.3	8.7	10.6
COUNTER TOP CONVECTION OVEN	2.7	4.0	2.7	2.0	2.9	1.0	2.7
GAS RANGE	17.9	4.3	6.1	7.9	1.5	10.3	10.9
FOOD FREEZER	85.5	83.7	86.3	84.0	83.9	80.5	84.9
ELECTRIC REFRIG - ANY TYPE	98.3	98.3	97.8	97.2	97.9	97.6	97.9
FROST FREE REFRIGERATOR	80.0	75.5	70.1	66.1	60.9	63.0	73.6
OTHER REFRIGERATOR	39.6	40.4	44.5	47.2	49.7	41.8	42.5
AUTOMATIC WASHER	73.3	69.1	67.6	62.6	58.6	57.3	68.7
COMPACT WASHER WITH SPIN DRY	10.9	12.6	15.9	16.7	15.3	22.4	13.6
WRINGER-WASHER	13.6	14.5	14.2	18.3	23.4	25.3	15.2
ELECTRIC CLOTHES DRYER	74.4	73.3	75.1	69.0	70.1	62.6	72.9
AUTOMATIC DISHWASHER	42.1	40.1	42.0	32.2	27.7	21.6	39.0
ELECTRIC WATER HEATER	77.2	89.1	90.8	87.5	85.8	87.6	84.3
GAS WATER HEATER	17.1	3.6	3.0	2.7	1.2	1.3	8.7
CENTRAL AIR CONDITIONING	5.5	4.4	2.7	1.5	1.0	.4	3.8
WINDOW AIR COND. - ONE	14.2	9.7	5.4	8.4	2.1	5.9	10.2
WINDOW AIR COND. - 2 OR MORE	3.8	1.1	1.5	1.3	.5		2.3
BLACK AND WHITE TELEVISION	43.9	38.3	40.9	45.2	37.6	35.8	42.5
COLOUR TELEVISION	83.6	79.3	83.2	80.1	76.0	75.4	81.8

APPLIANCE SATURATION BY RATE CLASS
WESTERN REGION

RATE CLASS	RESIDENTIAL				* MUNICIPAL RESIDENTIAL		* REGIONAL TOTAL
	R1 & R2	FARM	A	L	%	%	
HOUSEHOLDS AS OF DEC 31, 1983	87238	44311			468816		600365
APPLIANCES			%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	97.0	97.1			98.6		97.5
MICROWAVE OVEN	17.1	17.2			12.9		13.9
COUNTER TOP BROILER OVEN	11.8	9.9			13.7		13.1
COUNTER TOP CONVECTION OVEN	3.3	2.7			2.2		2.4
GAS RANGE	20.2	17.9			15.7		16.7
FOOD FREEZER	73.8	65.5			54.7		60.6
ELECTRIC REFRIG - ANY TYPE	98.9	98.3			98.6		98.6
FROST FREE REFRIGERATOR	81.6	79.6			72.3		74.5
OTHER REFRIGERATOR	37.8	39.6			42.5		41.5
AUTOMATIC WASHER	73.9	73.3			68.9		70.1
COMPACT WASHER WITH SPIN DRY	11.2	10.9			7.0		8.0
WRINGER-WASHER	9.4	13.6			6.0		7.2
ELECTRIC CLOTHES DRYER	71.2	74.4			57.8		61.5
AUTOMATIC DISHWASHER	38.7	42.1			32.6		34.5
ELECTRIC WATER HEATER	58.6	77.2			26.6		36.3
GAS WATER HEATER	36.1	17.1			60.5		52.6
CENTRAL AIR CONDITIONING	12.4	5.5			16.9		15.2
WINDOW AIR COND. - ONE	17.4	14.2			25.2		22.9
WINDOW AIR COND. - 2 OR MORE	3.9	3.6			6.0		5.5
BLACK AND WHITE TELEVISION	42.0	43.9			38.8		39.8
COLOUR TELEVISION	88.9	83.6			88.7		88.3

* INCLUDING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

APPLIANCE SATURATION BY RATE CLASS
CENTRAL REGION

M16

RATE CLASS	RESIDENTIAL R1 & R2					FARM					* MUNICIPAL RESIDENTIAL		* REGIONAL TOTAL	
	R	U	R	A	L						%	%		%
HOUSEHOLDS AS OF DEC 31, 1983	67602		18000								1492016		1577618	
APPLIANCES	%	%	%	%	%	%	%	%	%	%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	99.3		98.9								98.4		98.4	
MICROWAVE OVEN	20.6		17.9								11.7		12.3	
COUNTER TOP BROILER OVEN	15.1		10.5								13.6		13.6	
COUNTER TOP CONVECTION OVEN	3.0		4.0								2.7		2.7	
GAS RANGE	3.8		4.3								8.2		7.8	
FOOD FREEZER	77.8		83.7								44.3		46.9	
ELECTRIC REFRIG - ANY TYPE	99.4		98.3								97.8		97.9	
FROST FREE REFRIGERATOR	80.7		75.5								65.9		67.0	
OTHER REFRIGERATOR	39.9		40.4								43.9		43.6	
AUTOMATIC WASHER	72.2		69.1								59.0		59.9	
COMPACT WASHER WITH SPIN DRY	13.6		12.6								6.6		7.1	
WRINGER-WASHER	9.3		14.5								4.4		4.9	
ELECTRIC CLOTHES DRYER	76.8		73.3								50.6		52.5	
AUTOMATIC DISHWASHER	41.3		40.1								33.5		34.0	
ELECTRIC WATER HEATER	83.7		89.8								31.7		35.7	
GAS WATER HEATER	9.4		3.6								41.0		38.5	
CENTRAL AIR CONDITIONING													16.3	
WINDOW AIR COND. - ONE	8.6		4.4										17.8	
WINDOW AIR COND. - 2 OR MORE	12.6		9.7										3.4	
BLACK AND WHITE TELEVISION	2.2		1.1										3.5	
COLOUR TELEVISION													35.4	
													85.6	
													85.7	

* INCLUDING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

APPLIANCE SATURATION BY RATE CLASS
GEORGIAN BAY REGION

1983

RATE CLASS	RESIDENTIAL				* MUNICIPAL		* REGIONAL	
	R	U	R	A	L	FARM	RESIDENTIAL	TOTAL
HOUSEHOLDS AS OF DEC 31, 1983	70189		19490			96316	165935	
APPLIANCES	%	%	%	%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	98.9	98.9	99.0	99.0				
MICROHAWVE OVEN	15.6	13.2	15.9	15.9				
COUNTER TOP BROILER OVEN	15.4	10.6	15.5	15.5				
COUNTER TOP CONVECTION OVEN	2.4	2.7	3.3	3.3				
GAS RANGE	5.0	6.1	5.3	5.3				
FOOD FREEZER	74.7	86.3	66.0	66.0				
ELECTRIC REFRIG - ANY TYPE	98.8	97.8	98.5	98.5				
FROST FREE REFRIGERATOR	74.3	70.1	74.4	74.4				
OTHER REFRIGERATOR	39.8	44.5	41.2	41.2				
AUTOMATIC WASHER	67.3	67.6	70.7	68.8				
COMPACT WASHER WITH SPIN DRY	16.1	15.9	12.2	14.4				
WRINGER-WASHER	8.6	14.2	5.5	8.0				
ELECTRIC CLOTHES DRYER	73.2	75.1	71.3	72.6				
AUTOMATIC DISHWASHER	35.6	42.0	38.3	37.7				
ELECTRIC WATER HEATER	86.2	90.8	55.5	73.6				
GAS WATER HEATER	7.9	3.0	35.9	19.3				
CENTRAL AIR CONDITIONING	3.3	2.7	3.4	3.3				
WINDOW AIR COND. - ONE	9.5	5.4	13.3	10.6				
WINDOW AIR COND. - 2 OR MORE	1.6	1.5	2.2	1.9				
BLACK AND WHITE TELEVISION	38.1	40.9	37.0	38.0				
COLOUR TELEVISION	87.0	83.2	90.1	87.8				

* INCLUDING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

APPLIANCE SATURATION BY RATE CLASS
EASTERN REGION

M18

RATE CLASS	HOUSEHOLDS AS OF DEC 31, 1983	R U R A L				* MUNICIPAL RESIDENTIAL	* REGIONAL TOTAL
		RESIDENTIAL R1 & R2		FARM			
	104345	23946			330204		458495
APPLIANCES		%	%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	98.8	98.0				99.2	99.0
MICROWAVE OVEN	14.8	12.0				11.6	12.4
COUNTER TOP BROILER OVEN	10.7	12.4				13.9	13.0
COUNTER TOP CONVECTION OVEN	2.8	2.0				2.6	2.6
GAS RANGE	5.5	7.9				2.2	3.3
FOOD FREEZER	76.2	84.0				50.6	58.7
ELECTRIC REFRIG - ANY TYPE	98.6	97.2				98.8	98.6
FROST FREE REFRIGERATOR	74.2	66.1				67.8	69.3
OTHER REFRIGERATOR	41.3	47.2				42.8	42.7
AUTOMATIC WASHER	72.19	62.6				60.8	63.7
COMPACT WASHER WITH SPIN DRY WRINGER-WASHER	14.3	16.7				7.7	9.8
ELECTRIC CLOTHES DRYER	9.0	18.3				2.7	5.1
AUTOMATIC DISHWASHER	76.2	69.0				58.2	63.2
ELECTRIC WATER HEATER	37.5	32.2				35.8	36.0
GAS WATER HEATER	82.3	87.5				51.7	61.2
CENTRAL AIR CONDITIONING	10.2	2.7				23.4	19.0
WINDOW AIR COND. - ONE	5.1	1.5				12.6	10.1
WINDOW AIR COND. - 2 OR MORE	14.6	8.4				18.5	17.0
BLACK AND WHITE TELEVISION	1.5	1.3				3.4	2.8
COLOUR TELEVISION	44.4	45.2				38.0	40.0
	86.4	80.1				82.2	85.2

* INCLUDING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

APPLIANCE SATURATION BY RATE CLASS
NORTHEASTERN REGION

1983

RATE CLASS	R	U	R	A	L	* MUNICIPAL RESIDENTIAL	* REGIONAL TOTAL
	RESIDENTIAL R1 & R2	FARM					
HOUSEHOLDS AS OF DEC 31, 1983	77286	2809				103400	183495
APPLIANCES	%	%	%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	98.8	98.7	99.4	99.1			
MICROWAVE OVEN	16.8	14.1	13.5	15.1			
COUNTER TOP BROILER OVEN	9.6	8.3	9.7	9.6			
COUNTER TOP CONVECTION OVEN	2.1	2.9	2.6	2.4			
GAS RANGE	3.2	1.5	3.3	3.2			
FOOD FREEZER	71.5	83.9	60.9	66.3			
ELECTRIC REFRIG - ANY TYPE	97.4	97.9	97.6	97.5			
FROST FREE REFRIGERATOR	69.2	60.9	69.8	69.4			
OTHER REFRIGERATOR	39.1	49.7	42.2	40.9			
AUTOMATIC WASHER	72.7	58.6	72.7	72.5			
COMPACT WASHER WITH SPIN DRY	12.4	15.3	6.5	10.5			
WRINGER-WASHER	9.8	23.4	5.4	7.8			
ELECTRIC CLOTHES DRYER	75.4	70.1	67.5	71.3			
AUTOMATIC DISHWASHER	31.5	27.7	32.5	31.9			
ELECTRIC WATER HEATER	68.5	85.8	54.1	61.4			
GAS WATER HEATER	23.0	1.2	31.2	26.8			
CENTRAL AIR CONDITIONING	1.1	1.0	1.3	1.2			
WINDOW AIR COND. - ONE	6.4	2.1	7.4	6.9			
WINDOW AIR COND. - 2 OR MORE	.1	.5	1.1	.6			
BLACK AND WHITE TELEVISION	39.2	37.6	38.2	38.7			
COLOUR TELEVISION	86.9	76.0	87.8	87.2			

* INCLUDING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

APPLIANCE SATURATION BY RATE CLASS
NORTHWESTERN REGION

1983

RATE CLASS	RESIDENTIAL				* MUNICIPAL RESIDENTIAL	* REGIONAL TOTAL
	R1 & R2	FARM	R	U		
HOUSEHOLDS AS OF DEC 31, 1983	20248	960			56036	77244
APPLIANCES	%	%	%	%	%	%
ELECTRIC RANGE - ANY TYPE	98.8	99.0	99.0	99.0	99.0	99.0
MICROWAVE OVEN	16.9	9.9	22.0	20.3		
COUNTER TOP BROILER OVEN	10.7	8.7	12.5	11.9		
COUNTER TOP CONVECTION OVEN	1.3	1.0	2.7	2.3		
GAS RANGE	6.4	10.3	2.2	3.5		
FOOD FREEZER	70.2	80.5	64.7	66.5		
ELECTRIC REFRIG - ANY TYPE	97.8	97.6	98.5	98.3		
FROST FREE REFRIGERATOR	69.4	63.0	75.4	73.4		
OTHER REFRIGERATOR	38.4	41.8	40.4	39.8		
AUTOMATIC WASHER	66.9	57.3	76.2	73.2		
COMPACT WASHER WITH SPIN DRY	12.5	22.4	5.0	7.5		
WRINGER-WASHER	12.3	25.3	6.7	8.6		
ELECTRIC CLOTHES DRYER	69.5	62.6	68.6	68.7		
AUTOMATIC DISHWASHER	29.7	21.6	34.6	31.9		
ELECTRIC WATER HEATER	79.3	87.6	40.6	52.7		
GAS WATER HEATER	10.1	1.3	51.0	38.2		
CENTRAL AIR CONDITIONING	1.0	.4	1.3	1.2		
WINDOW AIR COND. - ONE	6.7	5.9	8.4	7.9		
WINDOW AIR COND. - 2 OR MORE	.7	.7	.9	.8		
BLACK AND WHITE TELEVISION	41.2	75.8	36.7	38.0		
COLOUR TELEVISION	83.9	75.49	90.3	88.2		

* INCLUDING NON-HYDRO MUNICIPALITIES AND BULK-METERED APARTMENTS

TRENDS IN THE OWNERSHIP OF SELECTED APPLIANCES

SECTION IV

FIGURE 1

APPLIANCE SATURATION 1960 - 1983

RESIDENTIAL CUSTOMERS SERVED
DIRECTLY BY ONTARIO HYDRO*

(*RURAL R1, R2 AND FARM RESIDENCES)

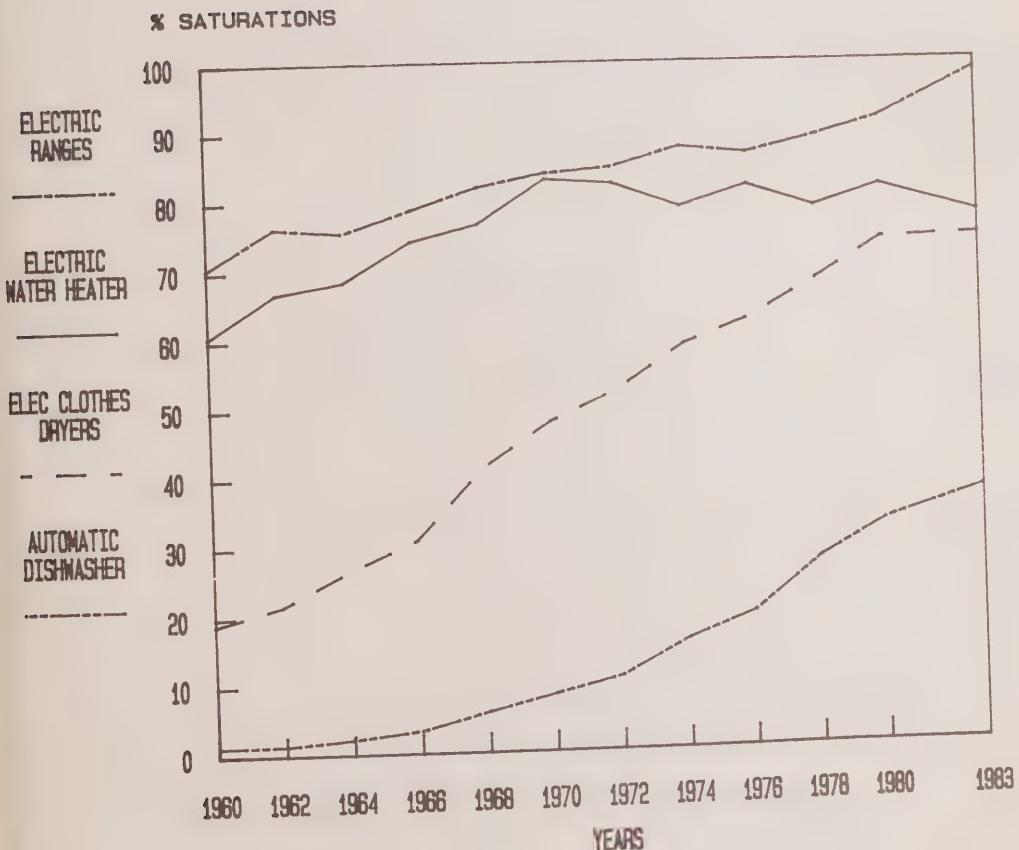


FIGURE 2

APPLIANCE SATURATION
1960 - 1983

RESIDENTIAL CUSTOMERS SERVED
DIRECTLY BY ONTARIO HYDRO*

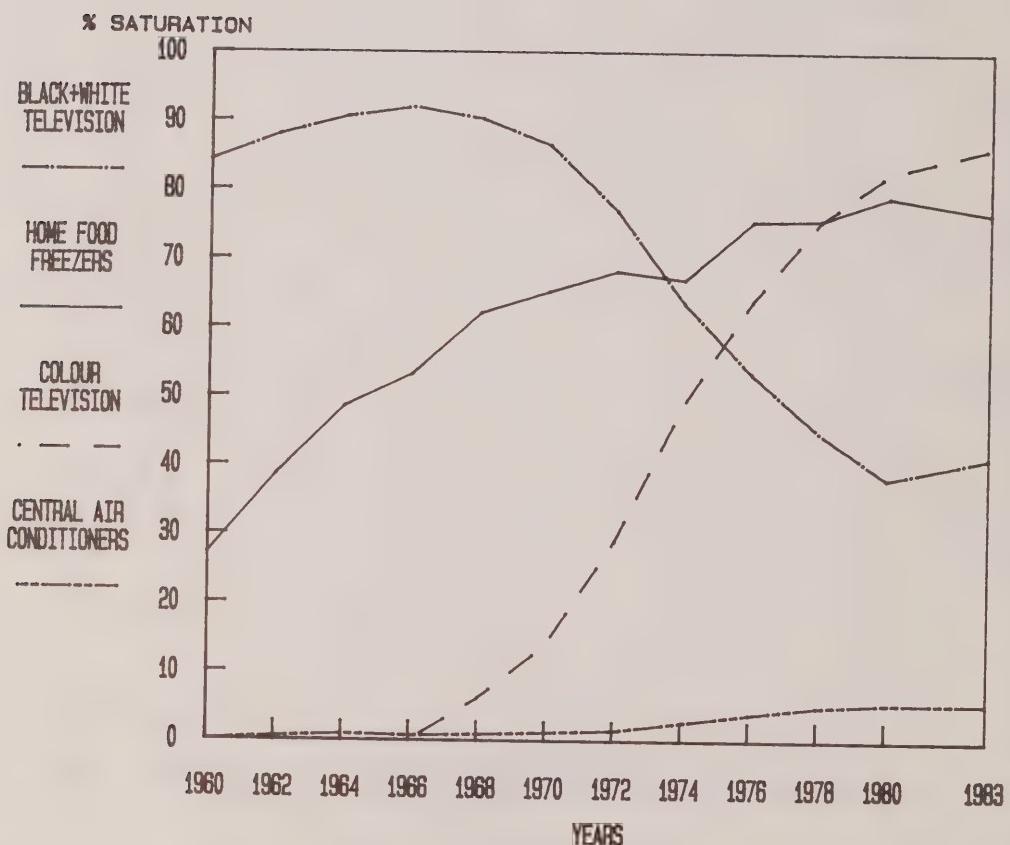


FIGURE 3

APPLIANCE SATURATION
1960 - 1983

RESIDENTIAL CUSTOMERS SERVED BY
MUNICIPAL ELECTRICAL UTILITIES*

(*HYDRO & NON-HYDRO MUNICIPALITIES PLUS
BULK-METERED APARTMENT DWELLINGS)

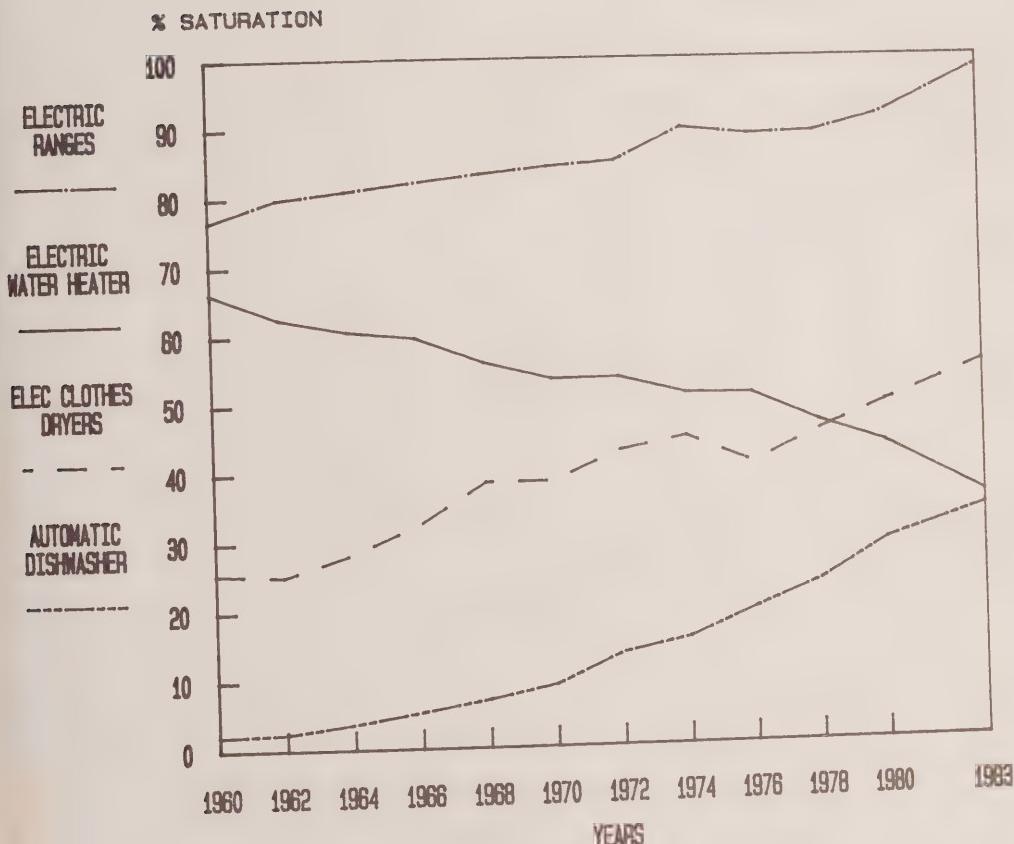
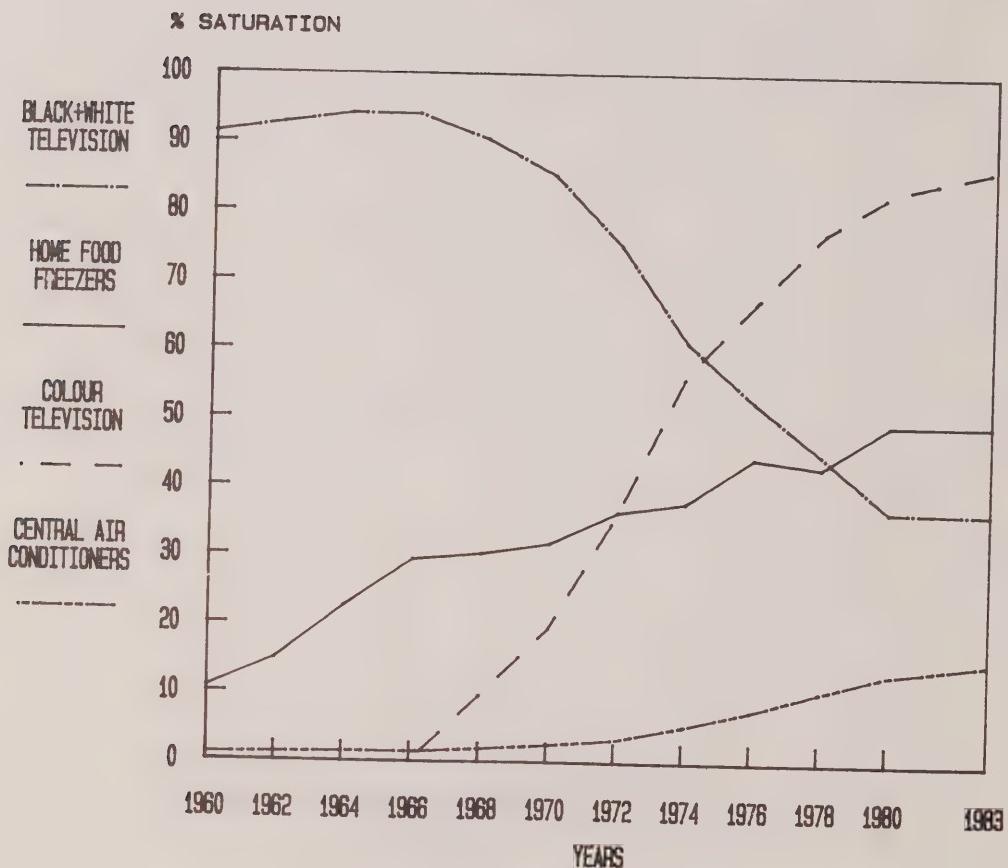


FIGURE 4

APPLIANCE SATURATION
1960 - 1983

RESIDENTIAL CUSTOMERS SERVED BY
MUNICIPAL ELECTRICAL UTILITIES*

(*HYDRO & NON-HYDRO MUNICIPALITIES PLUS
BULK-METERED APARTMENT DWELLINGS)



APPENDICES

SURVEY METHODOLOGY

The results of this survey are based on 45,641 useable responses to 127,502 questionnaires mailed to residential and farm customers. The method used was a two stage stratified technique. The population was stratified by size of municipality or area and then a systematic sampling from the customer billing records using a random starting point was employed to obtain samples proportionate to the population of the strata.

The response rate of 36% of questionnaires mailed is lower than the 1980 response rate of 45%. The last two surveys did not have a follow-up mailing.

There were 177 utilities that participated in the 1983 survey compared to the 160 that were involved in the 1980 survey.

A sample of bulk metered apartment dwellers was included to maintain consistency with past survey results. The bulk-metered apartment sample was drawn from several municipalities that have multiple dwelling units supplied through one meter and billed as one customer under a general service or commercial/industrial rate.

LIST OF PARTICIPATING MUNICIPALITIES

E	ALEXANDRIA	E	GLoucester Twp.	C	PETERBOROUGH
E	ALMONTE	W	GODERICH	W	PETROLIA
W	ALVINSTON	W	GRAND BEND	W	PORT DOVER
W	AMHERSTBURG	GB	GRAVENHURST	GB	PORT ELGIN
E	ARNPRIOR	C	GUELPH	C	PORT HOPE
GB	ARTHUR			W	PORT ROWAN
NW	ATIKOKAN TWP.			W	PORT STANLEY
W	AYLMER	W	HAGERSVILLE	E	PRESCOTT
		W	HARROW		
GB	BARRIE	GB	HUNTSVILLE		
E	BARRY'S BAY				
GB	BEFTON	W	INGERSOLL	E	RENFREW
W	BELLE RIVER			C	RICHMOND HILL
E	BELLEVILLE			W	RIDGETOWN
W	BELMONT	W	JARVIS	E	ROCKLAND
W	BLANDFORD-BLENHEIM			C	ROCKWOOD
W	BLENHEIM			W	RODNEY
W	BLYTH	E	KANATA		
W	BOTHWELL	E	KEMPTVILLE	W	ST. CATHARINES
CC	BRADFORD	E	KILLALOE STATION	W	ST. CLAIR BEACH
CC	BRAMPTON	GB	KINCARDINE	W	ST. MARY'S
W	BRANTFORD TWP.	E	KINGSTON	W	SANDWICH WEST TWP.
E	BROCKVILLE	W	KINGSVILLE	W	SARNIA
W	BRUSSELS			NE	SAULT STE. MARIE
W	BURFORD	E	LANCASTER	C	SCARBOROUGH
		W	LEAMINGTON	W	SCUGOG
GB	CALEDON	C	LINDSAY	W	SEAforth
C	CAMBRIDGE-	W	LONDON	NW	SIMCOE
	NORTH DUMFRIES	E	L'ORIGINAL	NW	SIOUX LOOKOUT
E	CAMPBELLFORD	GB	LUCKNOW	E	SMITHS FALLS
NE	CAPREOL			GB	SOUTHAMPTON
E	CASSELMAN			C	SOUTH DUMFRIES
W	CAYUGA	C	MARKHAM	W	STRATFORD
E	CHALK RIVER	E	MARMORA	W	STRATHROY
NE	CHAPLEAU TWP.	GB	MEAFORD	NE	STURGEON FALLS
W	CHATHAM	GB	MIDLAND	NE	SUDBURY
E	CHESTERVILLE	C	MILLBROOK		
C	CLIFFORD	C	MILTON	W	TECUMSEH
W	CLINTON	C	MISSISSAUGA	NW	TERRACE BAY TWP.
E	COBDEN	W	MITCHELL	W	THAMESVILLE
C	COBOURG	E	MORRISBURG	W	THOROLD
NE	COCHRANE	W	MOUNT BRYDGES	NW	THUNDER BAY
GB	COLLINGWOOD	GB	MOUNT FOREST	W	TILBURY
W	COMBER			C	TILLSONBURG
E	CORNWALL			E	TORONTO
W	COTTAM	E	NAPANEE		TRENTON
		E	NEPEAN		
E	DEEP RIVER	C	NEWCASTLE		
W	DELaware	C	NEWMARKET		
W	DELHI	W	NIAGARA FALLS	E	UXBRIDGE
W	DORCHESTER	W	NIAGARA-ON-THE-LAKE		
C	DUNDAS	NW	NIPIGON TWP.	E	VANKLEEK HILL
W	DUNNVILLE	NE	NORTH BAY	GB	VICTORIA HARBOUR
GB	DURHAM	C	NORTH YORK		
W	DUTTON	W	NORWICH	GB	WALKERTON
				GB	WASAGA BEACH
C	ELORA	C	OAKVILLE	W	WATERFORD
E	EMBRUN	C	OMEMEE	N	WATERLOO-WELLESLEY-WOOLWICH
W	ERIEAU	GB	ORILLIA	W	WATFORD
W	ERIE BEACH	C	OSHAWA	W	WEST LORNE
W	ESSEX	E	OTTAWA	W	WESTMINSTER TWP.
W	EXETER	GB	OWEN SOUND	C	WHITBY
				C	WHITCHURCH-STOUFFVILLE
C	FERGUS	W	PARIS	W	WINDSOR
E	FINCH	W	PARKHILL	GB	WINGHAM
W	FOREST	GB	PARRY SOUND	W	WOODSTOCK
* W	FORT ERIE	E	PEMBROKE		
* NW	FORT FRANCES	GB	PENETANGUISHENE		
E	FRANKFORD	E	PERTH	C	YORK
				W	ZORRA

* Non-Hydro Municipality

LEGEND

C = CENTRAL REGION
W = WESTERN REGION
E = EASTERN REGION

CB = GEORGIAN BAY REGION
NW = NORTHWESTERN REGION
NE = NORTHEASTERN REGION

LIST OF RURAL OPERATING AREAS

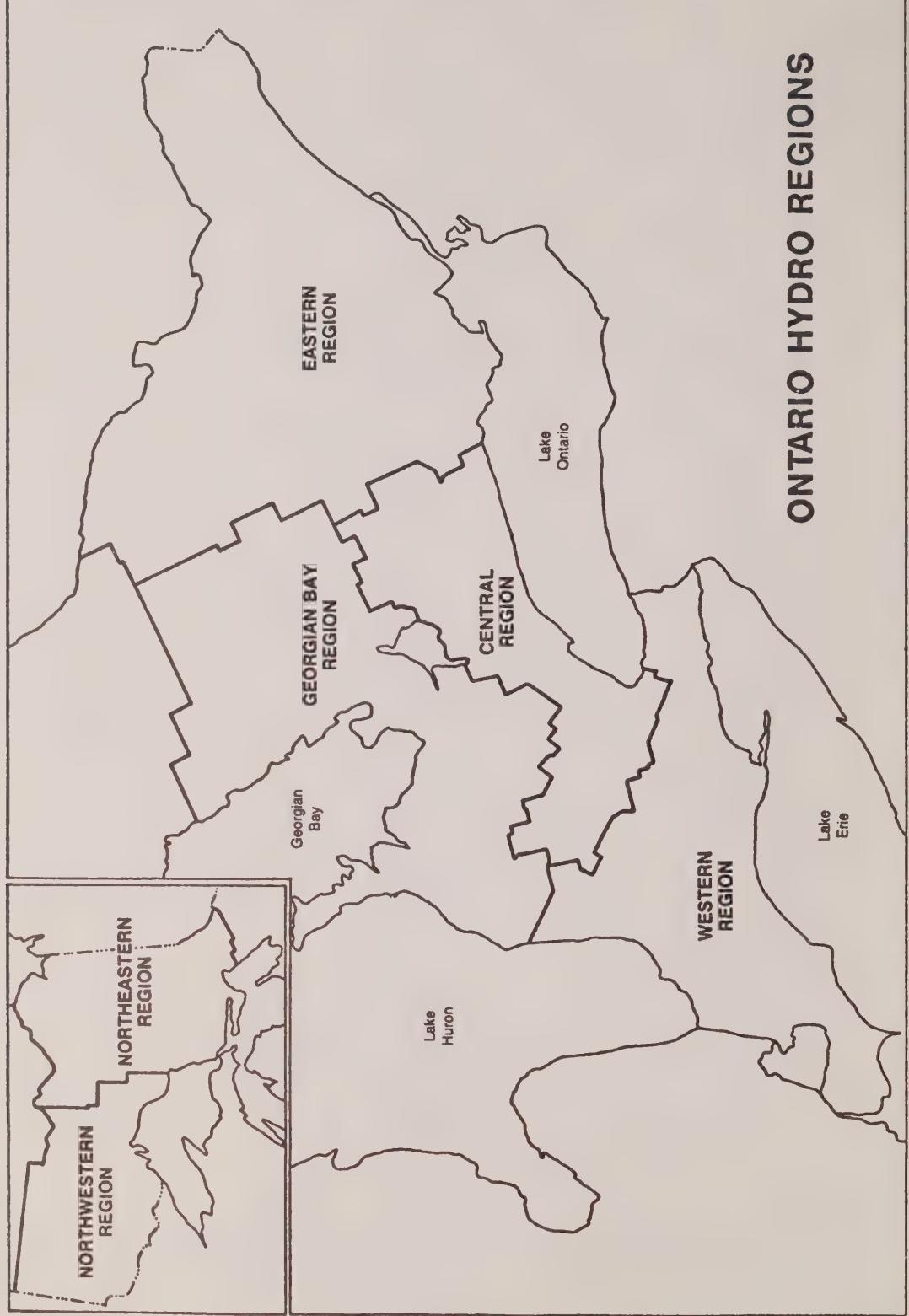
NE	ALGOMA	W	LAMBTON
GB	ALLISTON	NE	MANITOULIN
E	ARNPRIOR	NE	MATHESON
		GB	MINDEN
E	BANCROFT		
GB	BARRIE	NE	NEW LISKEARD
W	BEACHVILLE	C	NEWMARKET
W	BEAMSVILLE	NE	NORTH BAY
C	BOWMANVILLE		
GB	BRACEBRIDGE	GB	ORANGEVILLE
E	BROCKVILLE	GB	ORILLIA
		GB	OWEN SOUND
W	CAYUGA	GB	PARRY SOUND
W	CLINTON	GB	PENETANGUISHENE
E	COBDEN	E	PERTH
C	COBOURG	C	PETERBOROUGH
		E	PICTON
NW	DRYDEN		
C	DUNDAS	W	SIMCOE
		W	STRATHROY
		NE	SUDBURY
C	FENELON FALLS		
NW	FORT FRANCES	NW	THUNDER BAY
E	FRANKFORD	NE	TIMMINS
		E	TWEED
C	GUELPH		
		E	VANKLEEK HILL
GB	HUNTSVILLE		
		GB	WALKERTON
NE	KAPUSKASING	NE	WARREN
NW	KENORA	E	WINCHESTER
W	KENT		
E	KINGSTON		
NW	KIRKLAND LAKE		

LEGEND

C = CENTRAL REGION
W = WESTERN REGION
E = EASTERN REGION

GB = GEORGIAN BAY REGION
NW = NORTHWESTERN REGION
NE = NORTHEASTERN REGION

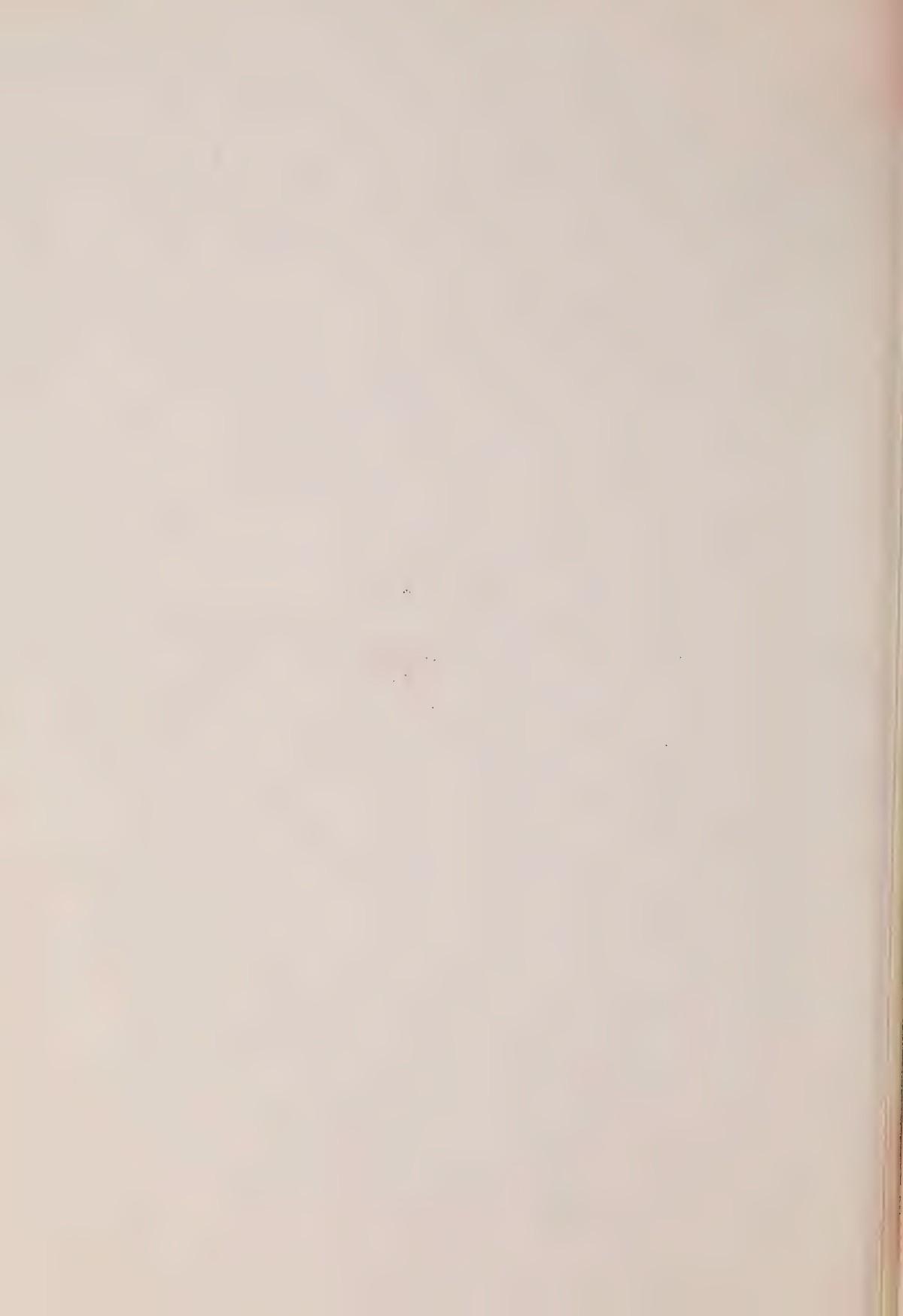
ONTARIO HYDRO REGIONS



SAMPLE CHARACTERISTICS = ALL HOUSEHOLDS

REGION	CLASS OF CUSTOMER	TOTAL NUMBER OF HOUSEHOLDS IN 1982	GROSS SAMPLE SIZE	NET SAMPLE SIZE	RESPONSE %
CENTRAL	- MUNICIPAL - SINGLY METERED	1,127,390	22,805	8,361	36.7
	- MUNICIPAL - BULK METERED APARTMENTS	364,626	12,902	1,716	13.3
	- RURAL (R1 + R2)	67,602	4,321	1,954	45.2
	- FARM	18,000	2,065	816	39.5
	TOTAL	1,577,618	42,093	12,847	30.5
WESTERN	- MUNICIPAL - SINGLY METERED	408,109	21,050	8,165	38.8
	- MUNICIPAL - BULK METERED APARTMENTS	60,707	2,346	379	16.2
	- RURAL (R1 + R2)	87,238	5,847	2,638	45.1
	- FARM	44,311	2,824	1,158	41.0
	TOTAL	600,365	32,067	12,340	38.5
GEORGIAN BAY	- MUNICIPAL - SINGLY METERED	88,880	5,852	2,214	37.8
	- MUNICIPAL - BULK METERED APARTMENTS	7,436	25	5	20.0
	- RURAL (R1 + R2)	70,189	6,051	2,881	47.6
	- FARM	19,490	2,455	1,014	41.3
	TOTAL	185,995	14,383	6,114	42.5
EASTERN	- MUNICIPAL - SINGLY METERED	264,723	12,199	4,235	34.7
	- MUNICIPAL - BULK METERED APARTMENTS	65,481	2,344	384	16.4
	- RURAL (R1 + R2)	104,345	6,492	2,837	43.7
	- FARM	23,946	2,745	1,012	36.9
	TOTAL	458,495	23,780	8,468	35.6
NORTHEASTERN	- MUNICIPAL - SINGLY METERED	96,511	3,964	1,457	36.8
	- MUNICIPAL - BULK METERED APARTMENTS	6,889	255	39	15.3
	- RURAL (R1 + R2)	77,286	4,782	1,923	40.2
	- FARM	2,809	1,439	541	37.6
	TOTAL	183,495	10,440	3,960	37.9
NORTHWESTERN	- MUNICIPAL - SINGLY METERED	53,572	2,228	930	41.7
	- MUNICIPAL - BULK METERED APARTMENTS	2,464	127	16	12.6
	- RURAL (R1 + R2)	20,248	1,879	753	40.1
	- FARM	960	505	213	42.2
	TOTAL	77,244	4,739	1,912	40.3
PROVINCIAL TOTAL	- MUNICIPAL - SINGLY METERED	2,039,185	68,098	25,362	37.2
	- MUNICIPAL - BULK METERED	507,603	17,999	2,539	14.1
	- RURAL (R1 + R2)	426,908	29,372	12,986	44.2
	- FARM	109,516	12,033	4,754	39.5
		3,083,212	127,502	45,641	35.8

NOTE: MUNICIPAL - SINGLY METERED INCLUDES CUSTOMERS OF MUNICIPALITIES WHO ARE NOT SUPPLIED POWER BY ONTARIO HYDRO



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**RESIDENTIAL APPLIANCE
SURVEY 1986**

MS&DD 87-13

**MARKET
RESEARCH**



**RESIDENTIAL APPLIANCE
SURVEY 1986**

MS&DD 87-13

ISSN 0828-1572

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**PREPARED BY
MARKET PLANNING DEPARTMENT**

INTRODUCTION

This report provides the results of the thirteenth Ontario Hydro "Residential Appliance Survey". It contains an analysis of appliance ownership in Ontario homes.

The objectives of this survey were:

1. to continue the data base begun in 1960, which provides appliance ownership information by individual participating Municipal Utilities and each of Ontario Hydro's Rural Retail Areas.
2. to use the data as an input to the Residential End-Use Energy Planning System(REEPS), a residential electricity forecasting model being evaluated by Ontario Hydro.
3. to provide data to measure the effects of household characteristics and appliance ownership on electricity consumption.
4. to measure conversion and replacement rates of water and space heating systems.

This mail survey, conducted during the months of November and December 1986, was produced with the assistance and cooperation of the participating Municipal Utilities across Ontario.

June 1987

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COMMENTS ABOUT THE 1986 RESIDENTIAL APPLIANCE SURVEY

The 1986 Residential Appliance Survey had a response rate of 48.4% without a follow-up mailing. This response rate is up considerably from the 36% achieved in 1983 and the 45% achieved in 1980 (see Appendix, pages 21 and 22 for survey method and response).

This is the first year that the Residential Appliance Survey is being used as a direct input to the Residential End-Use Energy Planning System(REEPS), a recently acquired residential electricity forecasting model. As a result, the questionnaire was modified to provide the additional data needed to perform the conditional demand analysis required in the model (see page 23 for a sample of survey questionnaire).

In the 1986 survey, special care was taken to improve the question dealing with space heating. The new format considerably improved the quality of the answers to this question and provided a great deal of useful new information.

While only the computerized municipal utilities were asked to participate, the 1986 survey population represents 92% of all residential electricity consumers in Ontario.

Even though there have been some changes in questions from previous surveys, the format of this report is similar to earlier reports in order to provide the continuity needed for year to year comparisons.

HIGHLIGHTS OF THE 1986 RESIDENTIAL APPLIANCE SURVEY

APPLIANCES

Since the last survey in 1983, the ownership of microwave ovens and VCRs has exploded. The saturation level of microwaves has increased three-fold from 13% to 39% of all households while VCRs have increased almost four-fold from about 11% to 41%.

Other significant increases in saturations include frost-free refrigerators increasing from 70% to 76%, dishwashers from about 35% to 39%, and colour TVs from 87% to 94% of all households surveyed. Personal computers were surveyed for the first time in 1986 and 13% of all households now have one.

Figures on pages 19 and 20 show the changes in saturation rates of selected appliances since 1960 for Municipal and Rural Retail Residential customers, respectively.

Regional results of appliance saturations can be found on pages 13 to 18. There are no significant differences in appliance ownership by Region, except that gas cooking and gas clothes drying is more prevalent in Western Region than in the other Regions.

AIR CONDITIONING

Air conditioning in Ontario households is becoming more than a luxury, particularly central air conditioning. While room air conditioners have remained stable at about 20%, central air conditioning has moved from 13% to 19% of all households between 1983 and 1986. Just over one-third of all new homes built since 1981 have central air conditioning.

There are marked differences of air conditioning ownership by Region due to weather. The warmest Regions, Central and Western, show central air conditioning at 23% while the progressively cooler Regions Eastern, Georgian Bay, Northwestern and Northeastern at 14%, 5%, 3% and 2% respectively report significantly lower saturations.

WATER HEATING

While electric water heating saturation for all households remained stable at just under 45%, the single family saturation level fell from just under 52% to 47.6% between 1983 and 1986 (see page 10 for appliance saturation by housing type). During that period, many oil heated single family homes, which typically have electric water heating, converted to natural gas space heating. The survey shows

that 4.2% of single family households switched from electric water heating to natural gas since 1983, indicating that the water heating fuel generally changes with the space heating fuel.

Regional differences in water heating are dependent on the availability of natural gas and the amount of unconverted oil heating. Central and Western Regions have the lowest electric water heating saturations at about 35%. Georgian Bay Region is the highest at 78%. Eastern, Northeastern and Northwestern Regions have electric water heating saturation levels of 69%, 60% and 52% respectively.

SPACE HEATING

For this year's survey, rather than asking respondents for their main heating fuel, which has caused some problems in previous surveys due to increasing numbers of dual heating systems (e.g. add-on heat pumps, plenum heaters, air-tight wood stoves), respondents were asked to check off all of the heating equipment they had in the home. This allowed us to determine what combination of heating equipment is used in the home.

In single family homes, all-electric space heating is 18.1%, and in apartments it is 28.7%. Natural gas space heating is in 57% of single family homes and in 46% of apartments. Oil space heating is in 23% of single family homes and in 5% of apartments. Although a direct comparison with the 1983 survey cannot be made, electricity and natural gas space heating have increased due to the Canadian Oil Substitution Program, while oil space heating has decreased. The 1986 survey shows that 5.6% of those in single family dwellings switched from oil heating to some other form of heating since 1983.

All-electric space heating saturation by Region varies from about 12% in Central and Western Regions to 40% in Georgian Bay Region for single family homes. Electric heating saturation in apartments is higher, varying from 23% in Central Region to 61% in Northwestern Region.

With the inventory of heating equipment by respondent available this year, dual or multiple heating fuels can be tracked. Of those in single family dwellings with a natural gas furnace, 3.9% have built-in electric baseboard heaters, 1.1% have a heat pump, and 2.9% have an air-tight wood stove. Similarly, of those households with an oil furnace, 2.6% have built-in electric baseboards, .8% have heat pumps, .3% have plenum heaters, and 3.4% have air-tight wood stoves.

Since the energy crisis in the 1970's, Ontario Hydro's Rural Areas have shown a drop in electricity consumption in electrically heated single family households. This was likely due to increased use of wood. Results of the 1986 survey confirm this trend, showing a relatively high saturation of wood-electric systems in the Regions with a larger rural base of customers. The three highest saturations of air-tight stoves in homes with some form of electric heating are in Georgian Bay, Northeastern, and Eastern Regions at 15.9%, 10.3% and 8.4% respectively.

HOUSEHOLD CHARACTERISTICS

Appliance saturations by age of single family dwelling shows central air conditioning in over 30% of the homes built after 1980 (see page 12 for appliance saturations by age of single family dwelling). Electric water heating in pre-1961 homes is just over 50%. For homes built after 1980, the saturation declines to about 38%, which is close to the penetration of electric water heating in new homes during that period. The highest saturation of electric heat can be found in homes of the 1971-1983 vintage at around 30%, while the pre-1961 vintage homes show electric heating at 11%.

Appliance saturations in single family dwellings by kw.h-use ranges follow the trends one would expect, showing high saturations of electric appliances, electric heating and water heating where annual consumption of the home is over 15,000 kw.hs (see page 11 for appliance saturations by consumption ranges). For example, almost all households with an annual consumption over 15,000 kw.hs have an electric range, a frost-free refrigerator, an electric clothes washer and dryer, and a colour T.V. In single family homes with consumption of over 30,000 kw.hs, electric water heating saturation is over 90% and all-electric space heating is at 70%.

LIST OF PARTICIPATING
MUNICIPAL UTILITIES

MUNICIPAL UTILITY	REGION	MUNICIPAL UTILITY	REGION	MUNICIPAL UTILITY	REGION
AJAX	C	GRAND BEND	W	PORT HOPE	C
ALVINSTON	W	GRAVENHURST	GB	PORT STANLEY	W
AMHERSTBURG	W	GRIMSBY	W	PREScott	B
ANCASTER	C	GUELPH	C	RENfREW	E
ARNPRIOR	E	HALTON HILLS	C	RICHMOND HILL	C
AURORA	C	HAMILTON	C	RIDGETOWN	W
AYLMER	W	HARROW	W	BODNEY	W
BABBIE	GB	KANATA	B	SARNIA	W
BABBETON	GB	KINGSTON	B	SAULT STE MARIE	NB
BELL RIVER	W	KINGSVILLE	W	SCARBOROUGH	C
BELLEVILLE	E	LEAMINGTON	W	SCHREIBER	NW
BELMONT	W	LINCOLN	W	SCUGOG	C
BLANDFORD-BLENHEIM	W	LINDSAY	C	SEAPORTH	W
BLBNHEIM	W	LONDON	W	SIMCOE	W
BLYTH	W	MACKHAM	C	SIOUX LOOKOUT	NW
BOTHWELL	W	MBAFORD	GB	SOUTHAMPTON	GB
BRACEBRIDGE	GB	MIDLAND	GB	ST CATHARINES	W
BRADFORD	C	MILTON	C	ST MARYS	W
BRAMPTON	C	MISSISSAUGA	C	ST THOMAS	W
BRANTFORD	W	MITCHELL	W	STONEY CREEK	C
BROCK	C	N DORCHESTER TWP	W	STRATFORD	W
BUBB'S FALLS	GB	NAPANEE	E	STRATHROY	W
BURLINGTON	C	NEWCASTLE	C	SUDBURY	NE
CAMBRIDGE N DUMFRIES	C	NEWMARKET	C	TBCUMSEH	W
CASSELMAN	B	NIAGARA FALLS	W	TERRACE BAY	NW
CHATHAM	W	NIAGARA ON THE LAKE	W	THAMESVILLE	W
CLINTON	W	NIPIGON	NW	THUNDER BAY	NW
COLLINGWOOD	GB	NORPOLE	W	TIJBURY	W
COMBER	W	NORTH BAY	NE	TILLSONBURG	W
COOKSTOWN	GB	NORTH YORK	C	TORONTO	C
CORNWALL	B	NORWICH	W	TRENTON	B
COTTAM	W	OAKVILLE	C	UXBRIDGE	C
DEEP RIVER	B	OBILLIA	GB	VAUGHAN	C
DELHI	W	OSHAWA	C	WALLACEBURG	W
DUNDAS	C	OTTAWA	E	WASAGA BEACH	GB
DUNNVILLE	W	OWEN SOUND	GB	WATERLOO NORTH	C
EAST YORK	C	PARKHILL	W	WELLAND	W
EBIEAU	W	PELHAM	W	WEST LORNE	W
ETOBIKORE	C	PEMBROKE	E	WHITBY	C
EVETTE	W	PENETANGUISHNE	GB	WINDSOR	W
FERGUS	C	PERTH	E	WINGHAM	GB
FOREST	W	PETERBOROUGH	C	WOODSTOCK	W
FOOT FRANCES	NW	PETROLIA	W	YORKE	C
GLENCOE	W	PICKERING	C	ZORRA	W
GLoucester	E	PICTON	E		

LEGEND

C = CENTRAL
W = WESTERN
B = EASTERN

GB = GEORGIAN BAY
NB = NORTHEASTERN
NW = NORTHWESTERN

LIST OF ONTARIO
HYDRO OPERATING AREAS

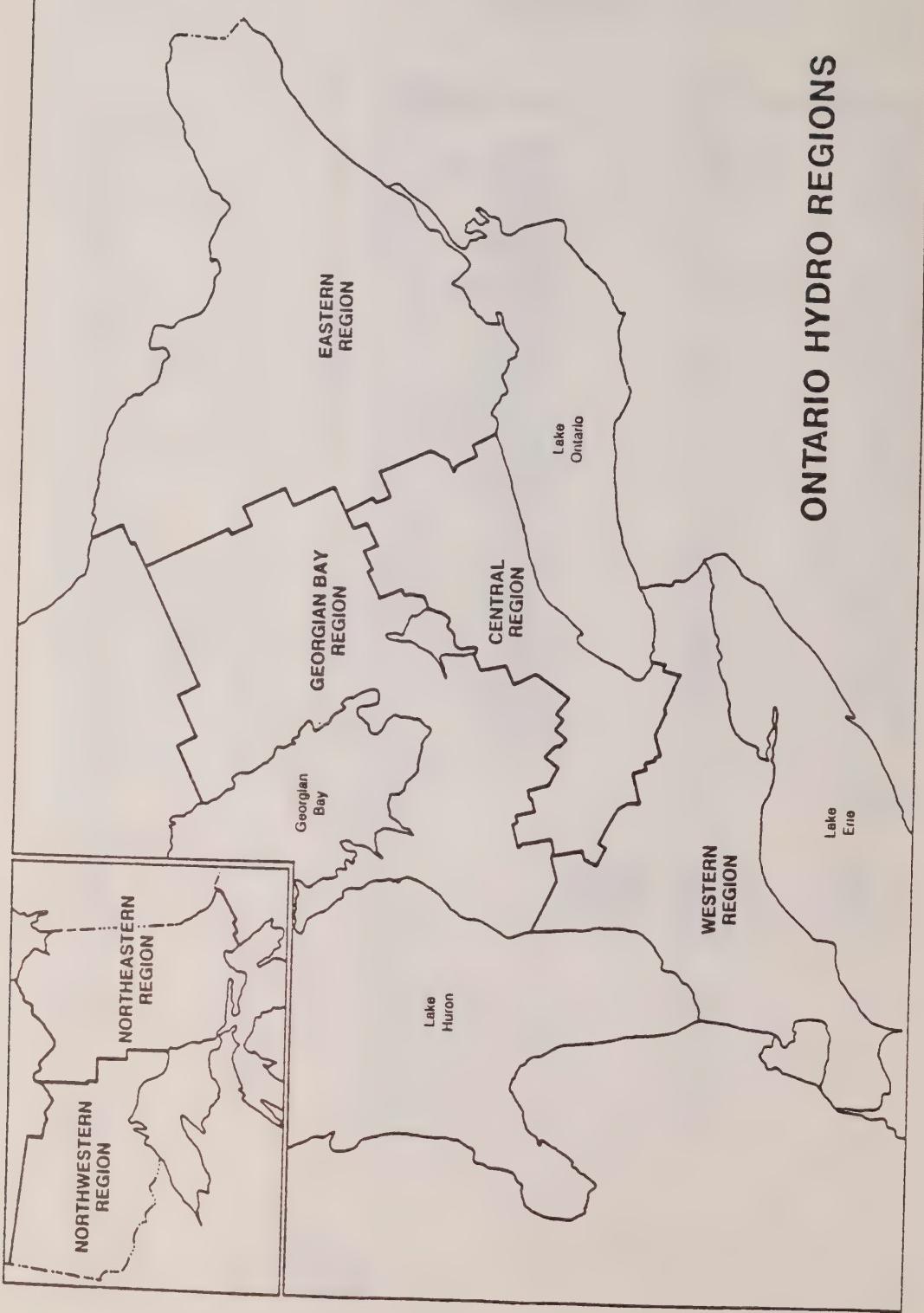
RURAL OPERATING AREA	REGION	RURAL OPERATING AREA	REGION
ALGOMA	ME	KINGSTON	B
ALLISTON	GB	KIRKLAND LAKE	NB
ABNPRIOR	B	LAMBTON	W
BANCROFT	B	LINCOLN	W
BARRIE	GB	MANITOULIN	NB
BEACHVILLE	W	MINDEN	GB
BOWMANVILLE	C	NEW LISKEARD	ME
BRACEBRIDGE	GB	NEWMARKET	C
BROCKVILLE	B	NORTH BAY	NB
CLINTON	W	ORANGEVILLE	GB
COBBEN	B	OWEN SOUND	GB
COBOURG	C	PARRY SOUND	GB
DYDBN	NW	PENETANGUISHNE	GB
DUNDAS	C	PBETH	B
BAST BLGIN	W	PETERBOROUGH	C
ELLIOT LAKE	ME	PICTON	B
ESSBY	W	SIMCOE	W
FERNBLOW FALLS	C	STRATHROY	W
PORT FRANCIS	NW	SUDBURY	NB
FRANKFORD	B	THUNDER BAY	NW
GUBLPH	C	TIMMINS	NB
HUNTSVILLE	GB	TWEED	B
KAPUSKASING	ME	VANLEER HILL	B
KENOBA	NW	WALKERTON	GB
KENT	W	WABBERN	NB
		WINCHESTER	B

LEGEND

C = CENTRAL
W = WESTERN
B = EASTERN

GB = GEORGIAN BAY
ME = NORTHEASTERN
NW = NORTHWESTERN

ONTARIO HYDRO REGIONS



APPLIANCE SATURATION BY REGION

REGION	CENTRAL	WESTERN	EASTERN	GEO BAY	NORTH EASTERN	NORTH WESTERN	TOTAL
HOUSEHOLDS SURVEYED NOVEMBER, 1986	1,598,9590	576,739	398,121	148,326	150,391	68,241	2,910,776
APPLIANCES	%	%	%	%	%	%	%
ELECTRIC RANGE	94.1	87.7	96.7	95.7	97.2	97.0	93.6
GAS RANGE	7.3	14.3	3.3	4.4	2.7	3.3	7.6
MICROWAVE OVEN	36.3	43.9	38.7	42.6	44.6	48.0	39.1
FROST-FREE REFRIG.	73.6	80.8	75.3	80.2	75.5	77.6	75.7
OTHER REFRIGERATOR	51.9	50.2	52.3	51.6	56.3	53.6	51.9
DISHWASHER	38.1	38.2	40.7	41.3	36.3	36.2	38.5
CLOTHES WASHER	71.3	82.9	77.8	88.1	86.4	85.0	76.3
ELECTRIC DRYER	59.4	66.4	69.9	79.2	75.5	73.7	64.3
GAS DRYER	5.0	11.0	1.1	2.4	1.6	1.8	5.2
COLOUR TV	93.9	94.7	93.4	94.3	95.0	95.3	94.1
B & W TV	23.3	28.9	26.8	26.4	27.7	26.1	25.3
VCR	42.2	37.5	40.5	38.0	40.2	44.2	40.8
PERSONAL COMPUTER	13.4	11.5	13.5	10.6	11.4	10.2	12.8
AIR CLEANER	12.5	11.9	9.1	5.8	4.5	6.2	11.0
WINDOW AIR COND.	22.2	28.1	17.0	11.8	7.2	6.5	20.9
CENTRAL AIR COND.	23.0	22.5	13.9	5.1	1.5	3.2	19.2
FURNACE HUMIDIFIER	30.2	32.5	21.3	18.1	18.5	17.1	27.9
ELECTRIC WATER HEATER	36.2	36.5	68.6	77.6	59.8	51.9	44.4
GAS WATER HEATER	53.9	59.9	25.4	18.5	34.7	44.8	48.1
ELECTRIC SPACE HEATING	15.9	16.5	31.8	40.2	34.8	24.6	20.6
GAS SPACE HEATING	60.0	68.5	30.4	24.1	41.6	51.7	53.3
OIL SPACE HEATING	16.7	13.8	34.0	30.6	19.4	18.6	18.8
WOOD FURNACE	.7	1.7	5.3	7.6	6.5	10.3	2.4
HEAT PUMP	3.1	2.2	3.3	1.9	.4	.5	2.7

APPLIANCE SATURATION BY RATE CLASS

RATE CLASS	RURAL RESIDENTIAL		MUNICIPAL		TOTAL
	HIGH DENSITY R1	LOW DENSITY R2	FARM	SINGLE METERED	
HOUSEHOLDS SURVEYED NOVEMBER, 1986	204,685	194,742	93,531	1,887,552	503,977 2,910,776
APPLIANCES	%	%	%	%	%
ELECTRIC RANGE	94.6	93.0	90.7	92.3	98.5 93.6
GAS RANGE	5.8	7.3	9.5	9.3	1.5 7.6
MICROWAVE OVEN	49.7	47.0	44.6	41.4	22.2 39.1
FROST-FREE REFRIG.	84.3	80.6	79.9	82.4	44.5 75.7
OTHER REFRIGERATOR	50.4	53.5	55.7	48.6	63.3 51.9
DISHWASHER	45.4	40.8	43.6	43.4	16.2 38.5
CLOTHES WASHER	93.2	92.2	93.2	87.2	19.2 76.3
ELECTRIC DRYER	84.0	81.2	80.7	72.0	18.0 64.3
GAS DRYER	3.6	2.6	3.7	6.9	.7 5.2
COLOUR TV	96.5	93.3	90.9	94.8	91.2 94.1
B & W TV	31.2	29.5	31.3	26.6	16.9 25.3
VCR	46.1	42.2	31.7	44.0	28.2 40.8
PERSONAL COMPUTER	13.6	12.7	10.1	14.8	5.5 12.8
AIR CLEANER	7.7	7.7	5.8	13.7	4.7 11.0
WINDOW AIR COND.	16.6	12.3	12.7	21.1	27.9 20.9
CENTRAL AIR COND.	10.6	12.7	6.7	24.3	10.4 19.2
FURNACE HUMIDIFIER	22.3	16.6	18.3	37.6	.2 27.9
ELECT. WATER HEATER	67.8	88.5	87.5	39.3	27.5 44.4
GAS WATER HEATER	28.5	5.9	7.2	55.0	55.0 48.1
ELECT. SPACE HEATING	35.6	41.2	16.6	14.7	28.8 20.6
GAS SPACE HEATING	33.6	7.7	8.9	62.9	52.0 53.3
OIL SPACE HEATING	26.4	40.8	60.6	17.8	3.1 18.8
WOOD FURNACE	4.2	14.5	20.1	.7	0.0 2.4
HEAT PUMP	2.9	4.0	2.8	3.0	.6 2.7

APPLIANCE SATURATION BY HOUSING TYPE

HOUSING TYPE	SINGLE FAMILY*	APARTMENTS**
HOUSEHOLDS SURVEYED NOVEMBER, 1986	2,049,805	638,683
APPLIANCES	%	%
ELECTRIC RANGE	92.4	98.4
GAS RANGE	9.1	1.7
MICROWAVE OVEN	45.1	21.9
FROST-FREE REFRIG.	85.5	44.4
OTHER REFRIGERATOR	48.1	63.5
DISHWASHER	46.5	15.4
CLOTHES WASHER	93.8	19.6
ELECTRIC DRYER	79.0	18.2
GAS DRYER	6.6	.6
COLOUR TV	95.9	90.2
B & W TV	28.0	17.2
VCR	45.9	27.7
PERSONAL COMPUTER	15.4	5.5
AIR CLEANER	13.2	4.6
WINDOW AIR COND.	19.4	27.1
CENTRAL AIR COND.	22.5	9.5
FURNACE HUMIDIFIER	37.2	.3
ELECTRIC WATER HEATER	47.6	30.9
GAS WATER HEATER	49.5	47.4
ELECTRIC SPACE HEATING	18.1	28.7
GAS SPACE HEATING	56.8	45.5
OIL SPACE HEATING	22.8	4.5
WOOD FURNACE	3.0	0.0
HEAT PUMP	3.3	.8

* INCLUDES SINGLE DETACHED, ATTACHED, ROW, TOWNHOUSES, 2-4 PLEXES AND MOBILES

** INCLUDES APARTMENTS OF 5 OR MORE UNITS

**APPLIANCE SATURATION BY Kw.h-USE RANGES
SINGLE FAMILY DWELLINGS**

ANNUAL ENERGY IN Kw.h	1-5000	5001-15000	15001-30000	OVER 30000
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HOUSEHOLDS

SURVEYED

NOVEMBER, 1986

271,210	979,370	348,037	117,560
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APPLIANCES	%	%	%	%
ELECTRIC RANGE	85.7	92.1	96.7	98.2
GAS RANGE	16.1	9.3	3.9	2.4
MICROWAVE OVEN	29.2	44.0	54.3	60.3
FROST-FREE REFRIG.	74.5	86.1	89.0	91.0
OTHER REFRIGERATOR	49.9	48.8	51.0	51.0
DISHWASHER	29.4	44.8	58.6	71.3
CLOTHES WASHER	87.3	94.8	96.5	98.5
ELECTRIC DRYER	59.1	79.5	89.7	94.3
GAS DRYER	8.5	7.5	3.1	1.5
COLOUR TV	92.1	96.7	97.0	97.4
B & W TV	24.7	28.2	30.1	28.6
VCR	33.1	45.1	52.6	57.5
PERSONAL COMPUTER	10.2	13.8	19.8	23.9
AIR CLEANER	10.1	11.9	17.7	20.1
WINDOW AIR COND.	17.1	19.5	18.7	17.1
CENTRAL AIR COND.	19.4	20.6	25.0	26.1
FURNACE HUMIDIFIER	36.7	41.0	31.4	26.4
ELECTRIC WATER HEATER	33.7	39.8	76.9	90.4
GAS WATER HEATER	62.5	57.1	20.7	7.7
ELECTRIC SPACE HEATING	5.3	6.9	43.0	69.7
GAS SPACE HEATING	73.4	67.1	27.2	10.5
OIL SPACE HEATING	21.4	26.4	28.3	16.7
WOOD FURNACE	1.0	2.9	5.5	5.3
HEAT PUMP	1.5	1.3	8.5	10.6

APPLIANCE SATURATION BY AGE
OF SINGLE FAMILY DWELLING

YEAR BUILT	BEFORE 1961	1961- 1970	1971- 1980	1981- 1983	AFTER 1984
HOUSEHOLDS SURVEYED NOVEMBER, 1986	1,033,453	331,520	412,933	93,357	112,479
APPLIANCES	%	%	%	%	%
ELECTRIC RANGE	89.2	93.8	96.6	97.5	97.2
GAS RANGE	2.2	7.9	4.7	3.9	3.8
MICROWAVE OVEN	38.6	50.0	53.3	56.0	57.6
FROST-FREE REFRIG.	82.2	88.6	89.7	91.7	94.9
OTHER REFRIGERATOR	50.9	52.1	44.6	37.2	32.8
DISHWASHER	37.8	54.3	57.3	63.7	60.7
CLOTHES WASHER	91.8	97.0	96.5	97.6	97.1
ELECTRIC DRYER	73.4	81.7	87.3	88.4	90.7
GAS DRYER	7.5	9.1	4.3	3.9	3.4
COLOUR TV	94.8	97.9	97.1	97.3	97.0
B & W TV	27.6	29.2	29.7	25.7	26.3
VCR	38.0	51.6	56.5	56.3	58.6
PERSONAL COMPUTER	11.9	16.9	20.7	22.2	20.3
AIR CLEANER	10.6	16.9	15.4	19.9	16.7
WINDOW AIR COND.	24.4	17.1	14.2	10.6	8.5
CENTRAL AIR COND.	16.0	30.5	29.1	35.2	30.8
FURNACE HUMIDIFIER	33.4	45.3	42.8	43.3	32.9
ELECTRIC WATER HEATER	52.1	42.6	45.6	38.6	37.1
GAS WATER HEATER	44.3	55.1	52.4	60.8	62.3
ELECTRIC SPACE HEAT	11.0	19.1	29.0	30.5	27.0
GAS SPACE HEATING	55.8	61.9	57.1	65.1	69.6
OIL SPACE HEATING	33.4	19.6	13.6	2.9	1.4
WOOD FURNACE	2.9	2.0	3.8	4.4	2.9
HEAT PUMP	2.8	1.0	3.6	8.0	4.5

APPLIANCE SATURATION BY REGION
FOR MUNICIPAL SINGLE METERED RESPONDENTS

REGION	CENTRAL	WESTERN	EASTERN	GEO BAY	NORTH EASTERN	NORTH WESTERN	TOTAL
HOUSEHOLDS SURVEYED NOVEMBER, 1986	1,133,790	367,737	211,971	54,863	75,585	43,605	1,887,552
APPLIANCES	%	%	%	%	%	%	%
ELECTRIC RANGE	92.5	86.5	97.7	95.1	97.3	98.6	92.3
GAS RANGE	9.4	15.8	2.4	5.1	3.0	1.9	9.3
MICROWAVE OVEN	40.3	44.6	37.7	42.6	45.1	50.5	41.4
FROST-FREE REFRIG.	82.6	84.9	78.8	81.5	78.0	83.6	82.4
OTHER REFRIGERATOR	48.0	48.2	48.7	50.0	55.5	52.1	48.6
DISHWASHER	44.8	39.8	44.2	41.5	40.3	39.1	43.4
CLOTHES WASHER	86.8	90.4	73.7	86.6	88.3	90.8	87.2
ELECTRIC DRYER	71.1	71.0	73.7	78.0	76.7	78.4	72.0
GAS DRYER	6.7	13.0	1.3	4.0	1.6	2.1	6.9
COLOUR TV	94.7	95.1	93.5	95.6	95.2	96.6	94.8
B & W TV	25.3	30.3	26.4	25.1	30.2	27.2	26.6
VCR	46.1	40.0	42.3	37.7	40.5	46.4	44.0
PERSONAL COMPUTER	16.0	12.7	15.4	9.8	12.5	9.8	14.8
AIR CLEANER	15.2	13.6	12.1	6.5	5.3	7.4	13.7
WINDOW AIR COND.	21.2	27.8	18.5	14.6	7.9	5.6	21.1
CENTRAL AIR COND.	27.7	27.2	18.4	5.5	1.7	3.8	24.3
FURNACE HUMIDIFIER	40.7	40.1	28.8	24.1	22.4	22.1	37.6
ELECTRIC WATER HEATER	37.1	26.6	63.9	59.3	53.5	35.6	39.3
GAS WATER HEATER	56.4	71.0	28.4	37.4	41.1	61.0	55.0
ELECTRIC SPACE HEAT	12.2	10.5	24.2	32.6	31.6	15.7	14.7
GAS SPACE HEATING	65.7	81.6	37.0	49.3	49.5	71.0	64.5
OIL SPACE HEATING	18.5	9.2	35.3	16.1	17.1	11.2	18.3
WOOD FURNACE	.4	.5	1.3	.9	2.0	4.7	.7
HEAT PUMP	3.6	1.8	4.2	1.1	.6	.4	3.0

APPLIANCE SATURATION BY REGION
FOR MUNICIPAL BULK METERED RESPONDENTS

REGION	CENTRAL	WESTERN	EASTERN	GEO BAY	NORTH EASTERN	NORTH WESTERN	TOTAL
HOUSEHOLDS SURVEYED NOVEMBER, 1986	380,277	61,877	49,337	3,125	5,816	3,545	503,977
APPLIANCES	%	%	%	%	%	%	%
ELECTRIC RANGE	98.4	99.3	98.6	100.0	99.4	100.0	98.5
GAS RANGE	1.6	.8	1.4	0.0	.6	0.0	1.5
MICROWAVE OVEN	21.4	26.1	22.5	18.4	28.8	24.7	22.2
FROST-FREE REFRIG.	44.4	47.1	44.0	54.7	37.9	29.4	44.5
OTHER REFRIGERATOR	63.2	63.1	64.0	45.3	69.8	76.6	63.3
DISHWASHER	16.2	16.4	18.1	3.2	8.3	9.4	16.2
CLOTHES WASHER	19.9	18.2	16.0	19.7	12.8	14.5	19.2
ELECTRIC DRYER	18.8	15.9	15.7	18.1	10.6	14.5	18.0
GAS DRYER	.7	1.8	0.0	0.0	0.0	0.0	.7
COLOUR TV	91.4	91.3	88.8	98.4	90.9	95.3	91.2
B & W TV	16.5	19.4	17.6	16.7	13.4	10.6	16.9
VCR	30.1	23.4	21.9	12.8	26.3	10.6	28.2
PERSONAL COMPUTER	5.7	3.3	7.0	9.5	5.5	1.3	5.5
AIR CLEANER	4.9	4.5	3.4	4.8	6.1	2.3	4.7
WINDOW AIR COND.	26.7	44.4	20.9	9.0	5.3	11.9	27.9
CENTRAL AIR COND.	11.5	4.0	11.6	0.0	3.1	2.3	10.4
FURNACE HUMIDIFIER	.2	.2	.4	0.0	0.0	0.0	.2
ELECTRIC WATER HEATER	22.6	39.1	45.2	47.6	51.2	49.4	27.5
GAS WATER HEATER	56.1	52.0	53.5	42.9	40.4	50.6	55.0
ELECTRIC SPACE HEATING	22.9	43.8	47.5	45.3	61.9	67.0	28.8
GAS SPACE HEATING	53.9	47.0	50.4	45.3	29.7	33.0	52.2
OIL SPACE HEATING	4.0	.8	1.5	0.0	0.0	0.0	3.3
WOOD FURNACE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HEAT PUMP	.7	1.0	.4	0.0	0.0	0.0	.6

APPLIANCE SATURATION BY REGION
FOR RURAL RESIDENTIAL RESPONDENTS*

REGION	CENTRAL	WESTERN	EASTERN	GEO BAY	NORTH EASTERN	NORTH WESTERN	TOTAL
HOUSEHOLDS SURVEYED NOVEMBER, 1986	69,940	79,947	115,458	73,307	66,802	20,264	425,717
APPLIANCES	%	%	%	%	%	%	%
ELECTRIC RANGE	96.3	84.9	95.2	96.1	97.0	93.4	93.8
GAS RANGE	3.7	17.5	4.8	4.0	2.6	6.4	6.6
MICROWAVE OVEN	48.8	51.9	47.3	44.4	45.5	47.2	47.6
FROST-FREE REFRIG.	85.2	86.7	82.3	81.3	76.1	73.7	82.0
OTHER REFRIGERATOR	51.5	48.6	52.6	51.5	55.9	51.1	51.9
DISHWASHER	46.2	44.7	44.4	41.8	34.4	35.1	42.3
CLOTHES WASHER	93.3	92.9	92.4	91.1	90.4	84.4	91.7
ELECTRIC DRYER	84.2	77.7	84.8	82.1	79.6	73.7	81.5
GAS DRYER	2.1	10.5	1.0	1.3	1.7	1.3	3.2
COLOUR TV	95.1	95.8	95.5	94.3	95.3	92.8	95.1
B & W TV	27.4	29.4	30.1	26.0	26.1	26.6	28.0
VCR	46.8	40.4	46.4	41.1	41.5	46.1	43.6
PERSONAL COMPUTER	15.1	13.2	13.5	11.4	10.7	12.8	12.9
AIR CLEANER	10.4	11.7	6.9	6.0	3.6	4.5	7.6
WINDOW AIR COND.	15.3	21.2	13.9	11.0	6.7	7.5	13.6
CENTRAL AIR COND.	13.0	20.1	8.6	5.7	1.1	2.3	9.5
FURNACE HUMIDIFIER	25.2	27.0	18.0	15.6	16.0	9.8	19.7
ELECTRIC WATER HEATER	84.1	60.0	82.5	88.8	66.7	85.7	77.3
GAS WATER HEATER	11.3	36.3	12.3	7.3	28.0	10.7	18.2
ELECTRIC SPACE HEATING	38.3	24.3	40.9	50.7	36.6	36.2	38.1
GAS SPACE HEATING	14.5	47.2	14.8	9.4	35.2	15.7	23.1
OIL SPACE HEATING	44.3	25.3	39.7	33.4	22.5	36.2	33.8
WOOD FURNACE	5.9	3.5	10.8	8.8	11.1	22.8	8.9
HEAT PUMP	6.6	4.7	3.2	2.8	.2	.6	3.4

* INCLUDES ONTARIO HYDRO RATE CLASSES R1 AND R2

APPLIANCE SATURATION BY REGION
FOR FARM RESPONDENTS

REGION	CENTRAL	WESTERN	EASTERN	GEO BAY	NORTH EASTERN	NORTH WESTERN	TOTAL
HOUSEHOLDS SURVEYED NOVEMBER, 1986	14,952	37,178	21,355	17,031	2,188	827	93,531
APPLIANCES	%	%	%	%	%	%	%
ELECTRIC RANGE	95.5	86.4	90.8	95.4	95.5	88.0	90.7
GAS RANGE	4.7	15.1	8.0	4.3	2.8	11.6	9.5
MICROWAVE OVEN	46.1	49.6	39.9	39.1	41.1	37.3	44.6
FROST-FREE REFRIG.	80.4	84.8	75.5	76.4	69.0	68.9	79.9
OTHER REFRIGERATOR	54.1	52.6	59.7	58.1	60.3	55.2	55.7
DISHWASHER	47.3	45.3	38.4	45.5	32.4	26.5	43.6
CLOTHES WASHER	93.2	94.6	91.0	92.6	94.6	92.5	93.2
ELECTRIC DRYER	82.5	81.2	77.6	82.2	80.4	76.9	80.7
GAS DRYER	1.7	6.9	1.4	1.8	1.7	4.3	3.7
COLOUR TV	88.2	93.2	90.7	89.7	86.8	84.3	90.9
B & W TV	28.3	30.1	33.5	33.9	31.8	23.3	31.3
VCR	32.6	30.3	35.1	30.5	28.2	26.7	31.7
PERSONAL COMPUTER	12.6	9.5	9.9	10.1	8.0	6.6	10.1
AIR CLEANER	6.8	7.8	4.4	3.3	1.0	2.5	5.8
WINDOW AIR COND.	10.2	18.5	9.9	6.9	4.6	6.5	12.7
CENTRAL AIR COND.	7.8	10.8	2.6	2.6	1.8	2.4	6.7
FURNACE HUMIDIFIER	23.8	22.5	12.6	13.0	8.6	6.6	18.3
ELECTRIC WATER HEATER	89.9	79.2	93.9	94.3	94.0	91.8	87.5
GAS WATER HEATER	4.4	14.7	1.4	1.7	1.3	0.0	7.2
ELECTRIC SPACE HEATING	14.1	13.6	21.2	18.6	21.3	23.7	16.6
GAS SPACE HEATING	6.0	21.5	2.4	2.5	1.8	2.3	10.6
OIL SPACE HEATING	72.0	56.6	64.8	70.1	51.9	52.1	63.2
WOOD FURNACE	16.4	12.6	28.0	28.0	43.2	45.5	20.1
HEAT PUMP	4.2	4.0	1.3	1.1	.3	.7	2.8

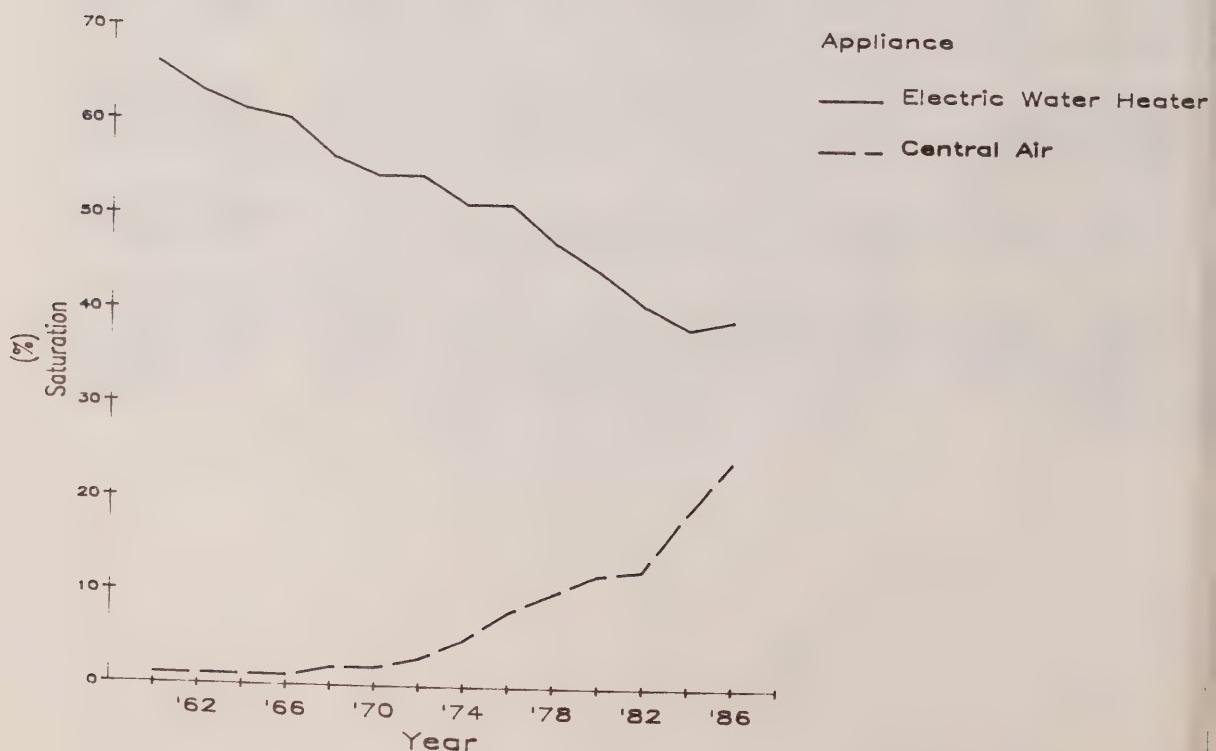
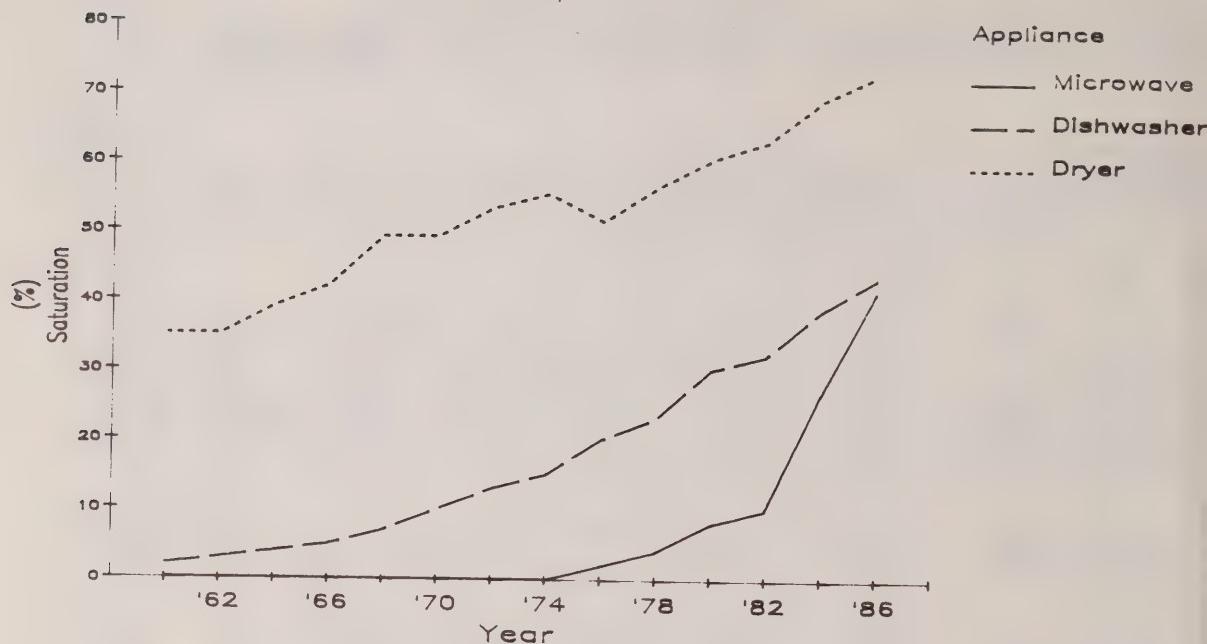
**APPLIANCE SATURATION BY REGION
FOR SINGLE FAMILY DWELLINGS**

REGION	CENTRAL	WESTERN	EASTERN	GEO BAY	NORTH EASTERN	NORTH WESTERN	TOTAL
HOUSEHOLDS SURVEYED							
NOVEMBER, 1986							
1,031,842 424,886 289,901 126,355 121,553 55,268 2,049,805							
APPLIANCES	%	%	%	%	%	%	%
ELECTRIC RANGE	92.4	86.5	96.4	95.7	97.3	97.0	92.4
GAS RANGE	9.5	15.8	3.6	4.5	2.7	3.3	9.1
MICROWAVE OVEN	43.7	48.0	43.9	45.1	47.2	51.0	45.1
FROST-FREE REFRIG.	87.0	86.8	82.9	82.2	79.8	81.5	85.5
OTHER REFRIGERATOR	46.5	47.9	49.4	51.2	55.0	52.2	48.1
DISHWASHER	48.7	43.4	47.7	44.2	40.4	40.5	46.5
CLOTHES WASHER	94.2	94.2	92.8	92.1	93.8	93.0	93.8
ELECTRIC DRYER	77.9	75.7	83.6	83.6	83.1	81.5	79.0
GAS DRYER	7.0	12.6	1.3	2.4	1.6	2.1	6.6
COLOUR TV	96.1	95.9	95.3	94.9	96.0	96.2	95.9
B & W TV	26.4	30.8	29.4	27.1	29.3	27.6	28.0
VCR	48.7	41.1	46.0	40.5	42.5	48.0	45.9
PERSONAL COMPUTER	17.0	13.4	16.2	11.4	12.6	11.1	15.4
AIR CLEANER	16.0	13.7	10.6	6.3	4.8	6.4	13.2
WINDOW AIR COND.	20.5	25.9	16.5	12.6	7.2	6.3	19.4
CENTRAL AIR COND.	28.7	26.2	14.8	5.4	1.6	3.4	22.5
FURNACE HUMIDIFIER	44.2	39.3	27.0	19.8	21.1	19.1	37.2
ELECTRIC WATER HEATER	40.3	35.1	72.9	78.0	60.0	49.9	47.6
GAS WATER HEATER	57.1	63.0	22.2	19.1	36.0	47.5	49.5
ELECTRIC SPACE HEATING	12.8	12.3	28.9	40.0	33.5	20.5	18.1
GAS SPACE HEATING	66.4	73.3	28.4	24.8	44.1	55.4	58.3
OIL SPACE HEATING	21.6	15.1	40.9	31.1	20.1	20.1	23.4
WOOD FURNACE	.9	1.9	6.3	7.6	7.0	11.7	3.0
HEAT PUMP	4.1	2.5	4.0	2.0	.3	.6	3.3

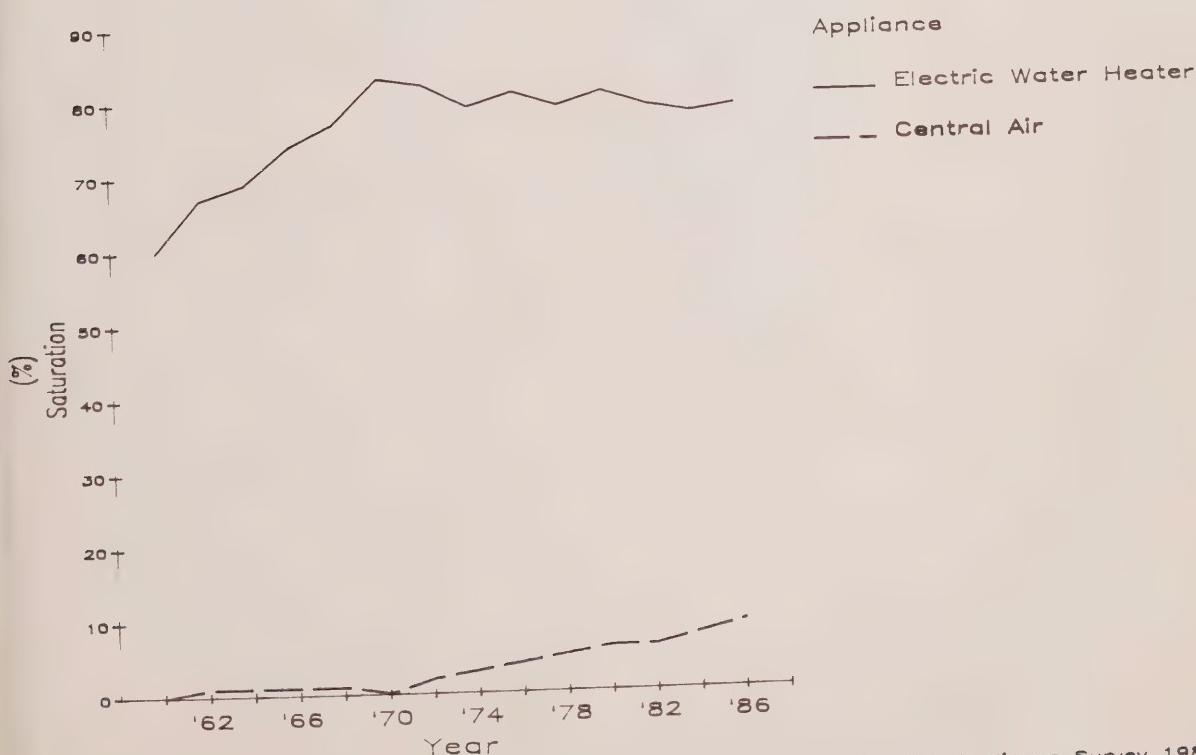
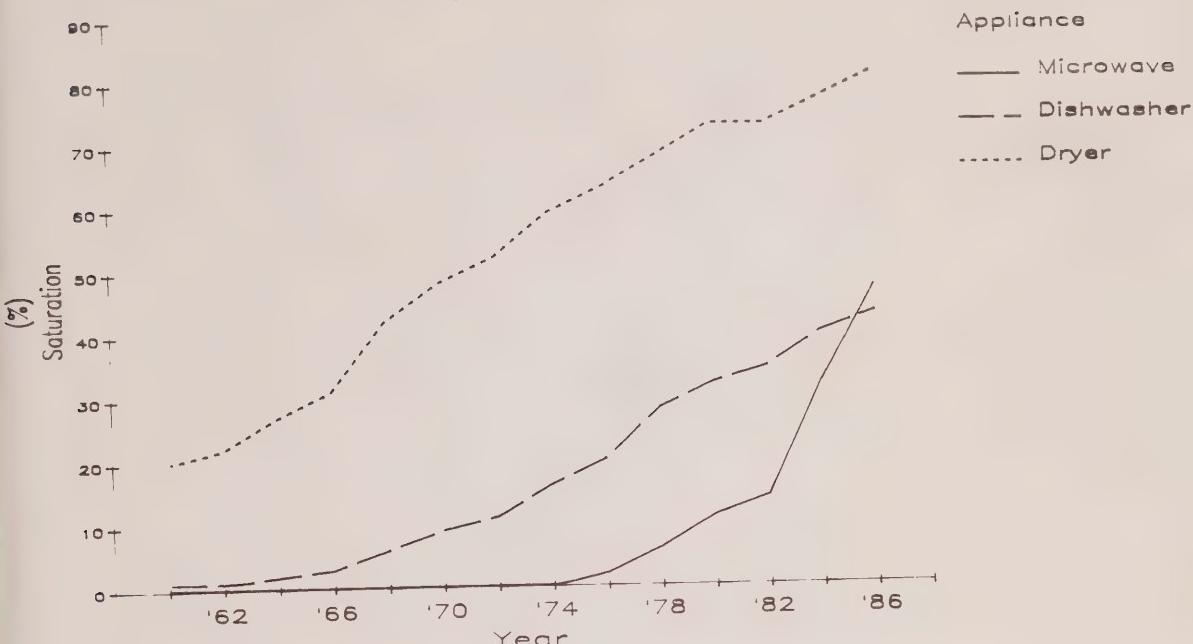
APPLIANCE SATURATION BY REGION
FOR APARTMENTS

REGION	CENTRAL	WESTERN	EASTERN	GEO BAY	NORTH EASTERN	NORTH WESTERN	TOTAL
HOUSEHOLDS SURVEYED NOVEMBER, 1986	467,940	74,277	72,556	6,000	11,844	6,066	638,683
APPLIANCES	%	%	%	%	%	%	%
ELECTRIC RANGE	98.3	98.6	98.5	100.0	99.2	98.8	98.4
GAS RANGE	1.7	1.5	1.6	0.0	.8	1.2	1.7
MICROWAVE OVEN	21.1	25.3	21.2	23.8	31.1	26.4	21.9
FROST-FREE REFRIG.	43.5	47.2	46.7	53.6	43.9	43.6	44.4
OTHER REFRIGERATOR	63.9	62.7	61.7	51.1	65.1	65.8	63.5
DISHWASHER	15.5	14.7	17.8	10.5	9.7	9.5	15.5
CLOTHES WASHER	19.7	18.7	18.7	22.5	25.2	20.2	19.6
ELECTRIC DRYER	18.7	16.6	17.1	16.7	17.4	16.3	18.2
GAS DRYER	.6	1.6	0.0	.7	.4	0.0	.6
COLOUR TV	90.3	90.5	88.1	93.5	91.8	93.6	90.2
B & W TV	16.8	19.2	17.9	16.1	18.3	16.4	17.2
VCR	29.5	22.2	22.7	17.8	29.1	18.3	27.7
PERSONAL COMPUTER	5.9	3.2	6.0	5.3	3.7	3.5	5.5
AIR CLEANER	4.9	4.1	3.3	4.1	4.2	3.8	4.6
WINDOW AIR COND.	26.7	42.0	20.8	9.4	5.1	8.5	27.1
CENTRAL AIR COND.	10.6	4.1	10.7	2.6	1.9	1.7	9.5
FURNACE HUMIDIFIER	.3	.2	.4	.6	1.5	2.4	.3
ELECTRIC WATER HEATER	25.4	40.3	49.3	51.4	51.3	56.5	30.9
GAS WATER HEATER	48.9	47.5	42.4	32.3	33.7	35.7	47.4
ELECTRIC SPACE HEATING	22.9	42.3	44.3	40.7	51.9	61.1	28.7
GAS SPACE HEATING	47.5	44.3	42.1	36.5	30.5	26.4	45.9
OIL SPACE HEATING	5.1	2.3	5.3	4.7	5.1	1.8	4.7
WOOD FURNACE	0.0	0.0	0.0	0.0	.5	0.0	0.0
HEAT PUMP	0.8	1.0	.9	0.0	.4	0.0	.8

Appliance Saturation
1960 — 1986
Residential Customers Served By
Municipal Utilities



Appliance Saturation
1960 — 1986
Residential Customers Served
Directly By Ontario Hydro



APPENDIX

SURVEY METHOD

In the summer of 1986, Ontario Hydro asked the 132 participating Municipal Utilities to select a random sample of residential households from their customer masterfile. A random sample of residential and farm households was also selected for each of the 51 Rural Operating Areas from Ontario Hydro's customer masterfile (see pages 5 and 6 for the list of participating Municipal Utilities and Rural Operating Areas).

A sample of bulk-metered apartment dwellers was included to maintain consistency with past survey results. Since there is only one electricity bill per bulk-metered building, questionnaires were addressed to residents of specified suite numbers. The masterfile containing addresses of bulk-metered apartment buildings was provided by the participating Municipal Utilities.

The sample was stratified by size of supply authority and rate class. Of the 126,135 questionnaires mailed, 61,090 useable responses were returned. The response rate of over 48% ensures that the results reasonably represents the survey population and therefore a follow-up mailing was not required.

SAMPLE AND RESPONSE

CLASS OF CUSTOMER	MUNICIPAL		RURAL RESIDENTIAL		TOTAL	
	SINGLE METERED CUSTOMERS	BULK METERED APTS	HIGH DENSITY (R1)	LOW DENSITY (R2)		
TOTAL HOUSEHOLDS SURVEYED AS OF SEPT., 1986	1,887,552	503,977	230,976	194,742	93,531	2,910,776
NUMBER OF QUESTIONNAIRES MAILED	68,317	16,010	16,768	14,365	10,676	126,135
QUESTIONNAIRES MAILED AS A % OF HOUSEHOLDS SURVEYED	3.6%	3.2%	7.3%	7.4%	11.4%	4.3%
NUMBER OF USEABLE QUESTIONNAIRES RETURNED	33,498	4,053	9,592	8,177	5,770	61,090
RETURNS AS A % OF QUESTIONNAIRES MAILED	49.0%	25.3%	57.2%	56.9%	54.0%	48.4%
RETURNS AS A % OF SURVEYED HOUSEHOLDS	1.8%	.8	4.2%	4.2%	6.2%	2.1%

SAMPLE QUESTIONNAIRE
residential appliance survey

Dear Customer

Please help us plan for your future electricity needs by answering the following questions. Upon completion, simply return the form in the enclosed prepaid envelope.

Please do it now while you are thinking about it.

Thank you for your co-operation.
Your Hydro



▼ please detach here ▼

If you live in an apartment building, please complete this form for your own unit only.

PLEASE CHECK the appliances used in your home and write the NUMBER used in the brackets ()

APPLIANCES	NUMBER USED	HOME HEATING
10 <input type="checkbox"/> frost-free refrigerator	()	Check ALL types of heating equipment used in your home
<input type="checkbox"/> other refrigerator.....	()	Natural Gas
<input type="checkbox"/> electric range		60 <input type="checkbox"/> natural gas forced air furnace
<input type="checkbox"/> gas range		<input type="checkbox"/> natural gas hot water furnace (radiators)
<input type="checkbox"/> wood-burning range		<input type="checkbox"/> natural gas space heater
<input type="checkbox"/> microwave oven		
<input type="checkbox"/> dishwasher		
21 <input type="checkbox"/> washing machine		Oil
<input type="checkbox"/> electric clothes dryer		63 <input type="checkbox"/> oil forced air furnace
<input type="checkbox"/> gas clothes dryer		<input type="checkbox"/> oil hot water furnace (radiators)
22 <input type="checkbox"/> electronic air cleaner		<input type="checkbox"/> oil space heater
<input type="checkbox"/> window air conditioner.....	()	
<input type="checkbox"/> central air conditioner		Electric
<input type="checkbox"/> heat exchanger (air to air)		66 <input type="checkbox"/> electric forced air furnace
<input type="checkbox"/> furnace humidifier		<input type="checkbox"/> electric hot water furnace (radiators)
31 <input type="checkbox"/> black and white television	()	<input type="checkbox"/> electric built-in heaters (e.g. baseboards)
<input type="checkbox"/> colour television.....	()	<input type="checkbox"/> electric ceiling cable
<input type="checkbox"/> video cassette recorder		<input type="checkbox"/> electric heat pump (air to air)
<input type="checkbox"/> personal computer		<input type="checkbox"/> electric heat pump (ground source)
39 <input type="checkbox"/> electric car block heater	()	<input type="checkbox"/> electric plenum heater
<input type="checkbox"/> electric swimming pool heater		<input type="checkbox"/> plug-in electric heaters
<input type="checkbox"/> electric water pump (e.g. for well)		

WATER HEATING

Check fuel used for water heating

- | | |
|---|-------------------------------------|
| 44 <input type="checkbox"/> electricity | 47 <input type="checkbox"/> propane |
| <input type="checkbox"/> natural gas | <input type="checkbox"/> other fuel |
| <input type="checkbox"/> oil | <input type="checkbox"/> don't know |

If you have replaced your water heater since 1983,
check the fuel your previous water heater used

- | | |
|---|--|
| 50 <input type="checkbox"/> electricity | 54 <input type="checkbox"/> other fuel |
| <input type="checkbox"/> natural gas | <input type="checkbox"/> have not replaced |
| <input type="checkbox"/> oil | <input type="checkbox"/> don't know |
| <input type="checkbox"/> propane | |

Is your water heater

- | | |
|-------------------------------------|--|
| 57 <input type="checkbox"/> owned | |
| <input type="checkbox"/> rented | |
| <input type="checkbox"/> don't know | |

Other Heating Equipment

- | |
|--|
| 74 <input type="checkbox"/> wood furnace |
| <input type="checkbox"/> slow burning wood stove (air tight) |
| <input type="checkbox"/> conventional wood stove |
| <input type="checkbox"/> fireplace |
| <input type="checkbox"/> propane heater |
| <input type="checkbox"/> solar collectors |
| <input type="checkbox"/> other _____ |

If you changed from oil heating, check the year this was done

- | |
|---|
| 81 <input type="checkbox"/> before 1981 |
| <input type="checkbox"/> 1981-1983 |
| <input type="checkbox"/> 1984 |
| <input type="checkbox"/> 1985 |
| <input type="checkbox"/> 1986 |

If you have a gas or oil furnace, is it the "high efficiency" condensing furnace?

(e.g. PULSE, T.H.E., MEGASAVE, ULTRAMAX)

- | | |
|---------------------------------|--|
| 86 <input type="checkbox"/> yes | 88 <input type="checkbox"/> don't know |
| <input type="checkbox"/> no | |

Is natural gas available in your neighborhood?

- | | |
|---------------------------------|--|
| 89 <input type="checkbox"/> yes | 91 <input type="checkbox"/> don't know |
| <input type="checkbox"/> no | |

CHARACTERISTICS OF YOUR HOME

Do you live in a

- 92 single family detached
single family semi-detached
townhouse or row house
duplex, triplex, fourplex
apartment (5 or more units)
mobile home
other _____

Are you a

- 99 home owner
tenant

Is your home a condominium?

- 101 yes
no

If you are a tenant or own a condominium, how do you pay for the heat and hot water in your home?

- 103 heat and hot water included in rent or maintenance fee
pay utility for hot water only
pay utility for heat only
pay utility for heat and hot water

Have you participated in:

- 107 Canadian Home Insulation Program (CHIP)
Canadian Oil Substitution Program (COSP)
Residential Energy Advisory Program (REAP)

When was your home built

- 110 before 1961
1961-1970
1971-1980
1981-1983
1984
1985
1986

Number of rooms in your home (____) 117
(exclude bathrooms, halls,
and unfinished rooms)

Number of people living in
your household (____) 119

Age of head of household

- 121 under 35 years
 35 - 44 years
 45 - 65 years
 over 65 years

Please indicate the combined 1985 pretax income from all sources for all members of your household. Your reply is CONFIDENTIAL and will help us assess the impact of electricity rates on various income groups.

- 125 under \$10,000
 \$10,000 - \$19,999
 \$20,000 - \$29,999
 \$30,000 - \$39,999
 \$40,000 - \$60,000
 over \$60,000

Thank you for your help.



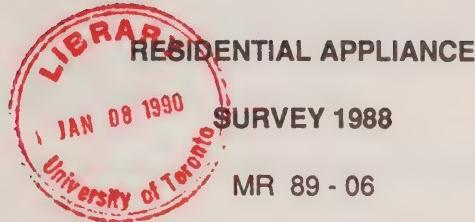
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PROGRAM SUPPORT AND SERVICES DIVISION



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FORWARD

The Residential Sector accounts for about one third of total electricity usage in Ontario. The Residential Appliance Survey is the most comprehensive source of information for understanding how Ontario households use electricity and other fuels.

With the conclusion of the 1988 survey, we have fourteen years of residential appliance use data. This information assists municipal utilities and Ontario Hydro in planning to meet customers electricity needs through energy management programs. This data also assists in the identification of trends in residential appliance use providing a reliable indicator for projections of energy demand in the Residential Sector.

We would like to acknowledge the cooperation of participating Municipal Utilities.

We welcome comments and suggestions from all users of the Residential Appliance Survey.

J. R. Freeman,

Manager, Market Research Department

INTRODUCTION

This is the fourteenth Residential Appliance Survey conducted by Ontario Hydro. It provides an estimate of the type and number of appliances in Ontario homes and identifies trends in appliance ownership. The objectives of this survey were:

- to provide energy conservation trends for use in Residential Energy Management Programs
- to measure conversion and replacement rates of water and space heating systems.
- to provide data to measure the effects of household characteristics and appliance ownership on electricity consumption.
- to use the data as an input to the Residential End-Use Energy Planning System (REEPS), a residential electricity forecasting model being used by Ontario Hydro.
- to continue the data base begun in 1960, which provides appliance ownership information by individual participating Municipal Utilities and each of Ontario Hydro's Rural Retail Areas.

This survey, conducted by mail during the months of November and December 1988, was produced with the assistance and cooperation of the participating Municipal Utilities across Ontario.

June 1989

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SECTION I - GENERAL

Table 1

Sample Characteristics and Response

Class of Customer	Municipal		Rural Retail		Total	
	Single Metered Customer Apartments	Bulk Metered	High Density (R1)	Low Density (R2)		
Total Households as of November 1988	1,855,298	491,162	276,883	216,967	105,686	2,945,996
Number of Questionnaires Mailed	57,400	21,117	16,300	14,931	11,385	121,133
Questionnaires Mailed as a Percent of Households Surveyed	3.1	4.3	5.9	6.9	10.8	4.1
Number of Useable Questionnaires Returned	23,555	3,465	7,359	6,840	5,162	46,381
Returns as a Percent of Questionnaires Mailed	41.0	16.4	45.1	48.8	45.3	38.3
Returns as a Percent of Surveyed Households	1.3	0.7	2.7	3.2	4.9	1.6
Estimated Sample Error (95% Confidence)	1.9%	5.0%	3.4%	3.5%	4.1%	1.4%

SURVEY METHOD

In the summer of 1988, 108 participating Municipal Utilities provided Ontario Hydro a random sample of single metered residential households from their customer masterfile. A random sample of Rural Retail residential and farm households was also selected for each of the 50 Rural Retail Operating Areas from Ontario Hydro's customer masterfile (see Appendix on pages 23 - 25 for the list of participating Municipal Utilities, Rural Retail Operating Areas and Regional Map).

A sample of bulk-metered apartment dwellers was included to maintain consistency with past survey results. Since there is only one electricity bill per bulk-metered building, questionnaires were addressed to residents of specified suite numbers. The masterfile containing addresses of bulk-metered apartment buildings was provided by the participating Municipal Utilities.

The random sample, selected from billing records, was stratified by size of supply authority and rate class. Of the 121,133 questionnaires mailed, 46,381 useable responses were returned. The response rate of 38% ensures that the results reasonably represents the survey population and therefore a follow-up mailing was not required. Since only computerized Municipal Utilities participated in the 1988 survey (to facilitate data collection), the 1988 survey population represents 89% of all residential electricity consumers in Ontario (see Sample Characteristics and Response, Table 1).

Due to the varying number of customers in each of the 158 survey areas, the sampling fractions were not uniform. The sampling fractions are determined so as to ensure a high and uniform degree of accuracy within the limitations (both sampling and non-sampling) of a mail survey.

No attempt was made to measure non-response bias following our experiences with other surveys when it was found to be negligible.

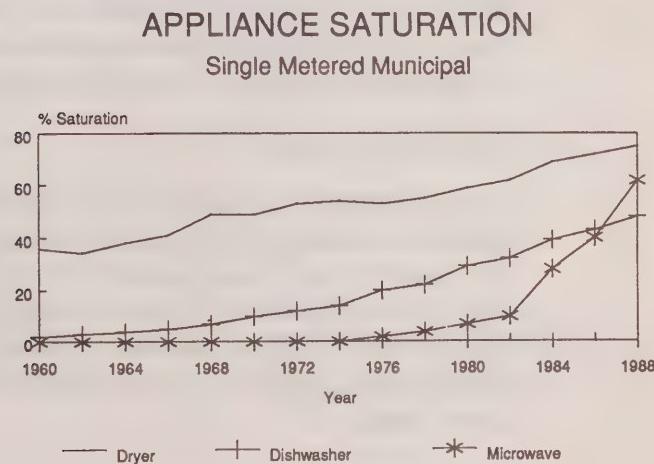
HIGHLIGHTS OF THE 1988 RESIDENTIAL APPLIANCE SURVEY

APPLIANCES

Ownership of microwave ovens and VCRs rose substantially, continuing the trend revealed in the 1986 survey. The saturation level of microwaves increased from 39% to 60% of all households while VCRs increased from about 41% to 57%.

Microwave ovens are very popular with Rural single metered customers at almost 70% saturation versus just over 60% ownership for Municipal single metered customers (see Figures 1 and 2).

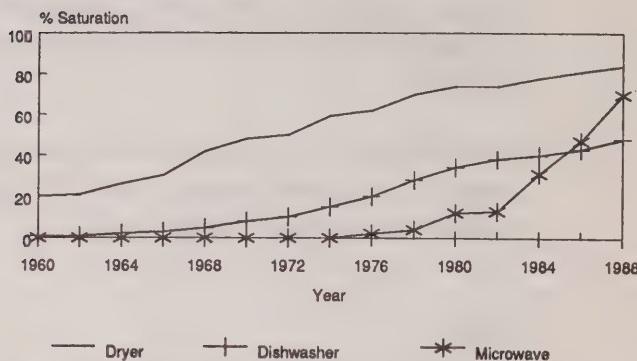
Figure 1



Among other appliances, frost-free refrigerator saturation increased from 76% to 79%, colour TVs from 94% to 98%, personal computers from 13% to about 18%, and dishwashers from 39% to 43% of all households surveyed. Dishwasher ownership by Rural single metered customers are the same as Municipal single metered at 48% (see Figures 1 and 2). Freezer ownership remained at about 60%. Over one-quarter of Farm customers have Sentinel Lights.

Figure 2**APPLIANCE SATURATION**

Single Metered Rural



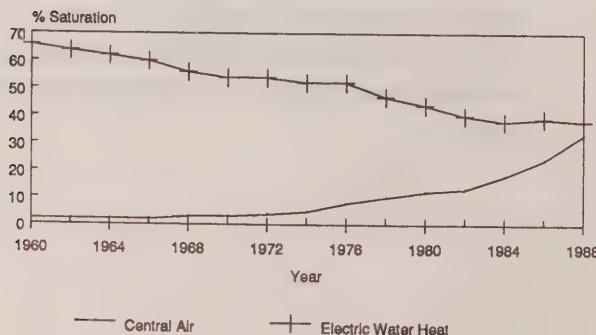
Regional results of appliance saturations can be found on pages 15 to 20. There are no significant differences in appliance ownership by Region, except that gas cooking and gas clothes drying is more prevalent in Western Region.

AIR CONDITIONING

Air conditioning in Ontario homes is more commonplace than ever, particularly central air conditioning. While room air conditioners rose slightly from 20% to 22%, central air conditioning soared to 26% of all households from 19% in 1986. One-third of the single metered Municipal customers have installed central air conditioning in contrast to 14% of their Rural counterparts(see Figures 3 and 4). Over 40% of all new homes built since 1986 installed central air conditioning.

Figure 3**APPLIANCE SATURATION**

Single Metered Municipal



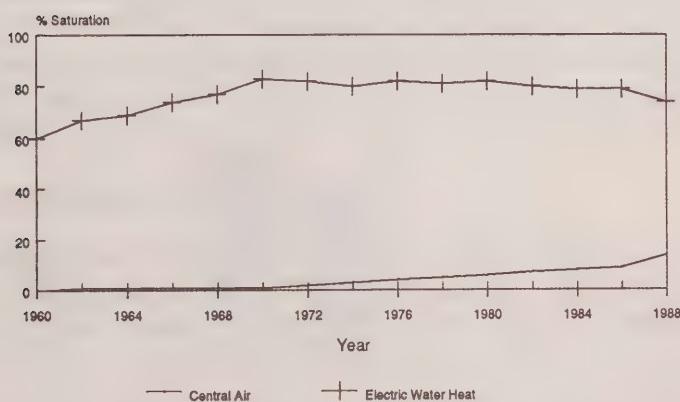
As one would expect, there are marked differences in air conditioning ownership by Region due to weather. The warmest Regions, Central and Western, show central air conditioning at just over 30 %. Central air conditioning ownership in the progressively cooler Regions, Eastern, Georgian Bay, Northwestern and Northeastern is 20%, 9%, 4% and 2% respectively.

WATER HEATING

While electric water heating saturation for all households dropped from 45% to 42%, the single family saturation level dropped marginally to just below 47% between 1986 and 1988 (see page 12 for appliance saturation by housing type). Rural electric water heating dropped from 79% to 74% due to inroads of natural gas in the higher density Rural Retail Areas (see Figure 4).

Figure 4

APPLIANCE SATURATION Single Metered Rural



The survey shows that 4.8% of single family homeowners converted to natural gas water heating from electric water heating between 1986 and 1988.

Regional differences in water heating are dependent on the availability of natural gas and the amount of unconverted oil heating. Central and Western Regions have the lowest electric water heating saturations at about 34%. Georgian Bay Region is the highest at 71%. Eastern, Northeastern and Northwestern Regions have electric water heating saturation levels of 62%, 56% and 50% respectively.

SPACE HEATING

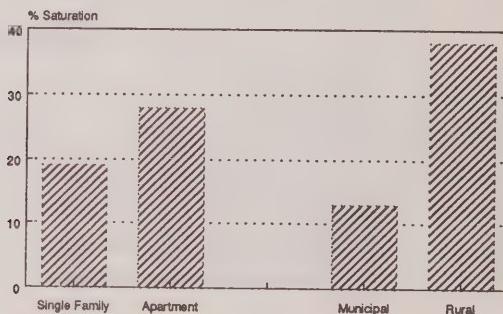
This year's survey incorporated the methodology developed for the 1986 survey. Rather than ask respondents for their main heating fuel, which caused some problems in earlier surveys due to increasing numbers of dual heating systems, (e.g. add-on heat pumps, plenum heaters, air-tight wood stoves) respondents were asked to check off all heating equipment in the home. This allows us to determine what combination of heating equipment is used in the home.

All-electric space heating in single family homes is 18.5% and in apartments it is 27.7% (see Figure 5). Natural gas space heating is 57% in single family and 39% in apartments. Oil space heating is 21% in single family and 5% in apartments. All-electric heating is 38% in the Rural versus 13% for Municipal single metered customers.

Figure 5

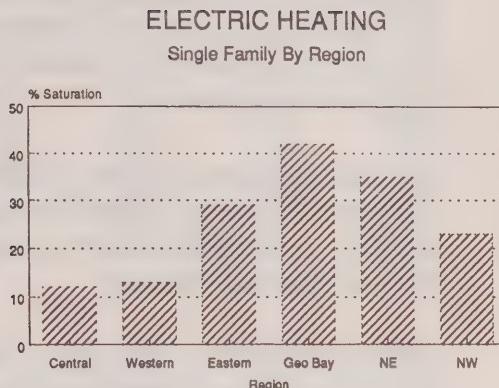
ELECTRIC HEATING

1988



All-electric heating saturation by Region varies from about 12% in Central and Western Regions to 42% in Georgian Bay Region for single family homes (see Figure 6). Electric heating saturation in apartments is higher, varying from 23% in Central Region to 52% in Northwestern Region.

Figure 6



With the inventory of heating equipment by respondent this year, dual or multiple heating fuels can be tracked. Of those in single family dwellings with a natural gas furnace, 3.2% have built-in electric baseboard heaters, 1.0% have a heat pump, and 2.5% have an air-tight wood stove. Similarly, of those households with an oil furnace, 2.1% have built-in electric baseboards, .8% have heat pumps, .2% have plenum heaters, and 3.0% have air-tight wood stoves.

HOUSEHOLD CHARACTERISTICS

Appliance saturations by age of single family dwelling shows central air conditioning in over 43% of the homes built after 1982 (see page 14 for appliance saturations by age of single family dwelling). Electric water heating in pre-1961 homes is just over 44%, while in homes built after 1982, the saturation declines to about 40%. The highest saturation of electric heat can be found in homes of the 1983-1985 vintage at around 35%, while the pre-1961 vintage homes show electric heating at 14%.

Appliance saturations in single family dwellings by kw.h-use ranges follow the trends one would expect, showing high saturations of electric appliances, electric heating and water heating where annual consumption of the home is over 15,000 kw.hs (see page 13 for appliance saturations by consumption ranges). For example, the majority of households with an annual consumption over 15,000 kw.hs have an electric range, a frost-free refrigerator, an electric clothes washer and dryer, and a colour T.V. In single family homes with consumption of over 30,000 kw.hs, electric water heating saturation stands at 87% and all-electric space heating is at 71%.

ENERGY CONSERVATION

Respondents were asked what, if any, energy conservation measures they had taken in the past two years (see Table 2). About 40% of single family respondents took at least one of the measures listed. Attic insulation was the most popular measure at 24%, followed by double\triple glazed windows at 18%. About 7% installed a high efficiency heating unit and just over 5% bought a high efficiency appliance.

When asked what energy efficient measures their house needed, 70% of single family householders felt that their house did not need any energy efficiency upgrading. Just under 15% of those in single family homes felt they needed double or triple glazed windows.

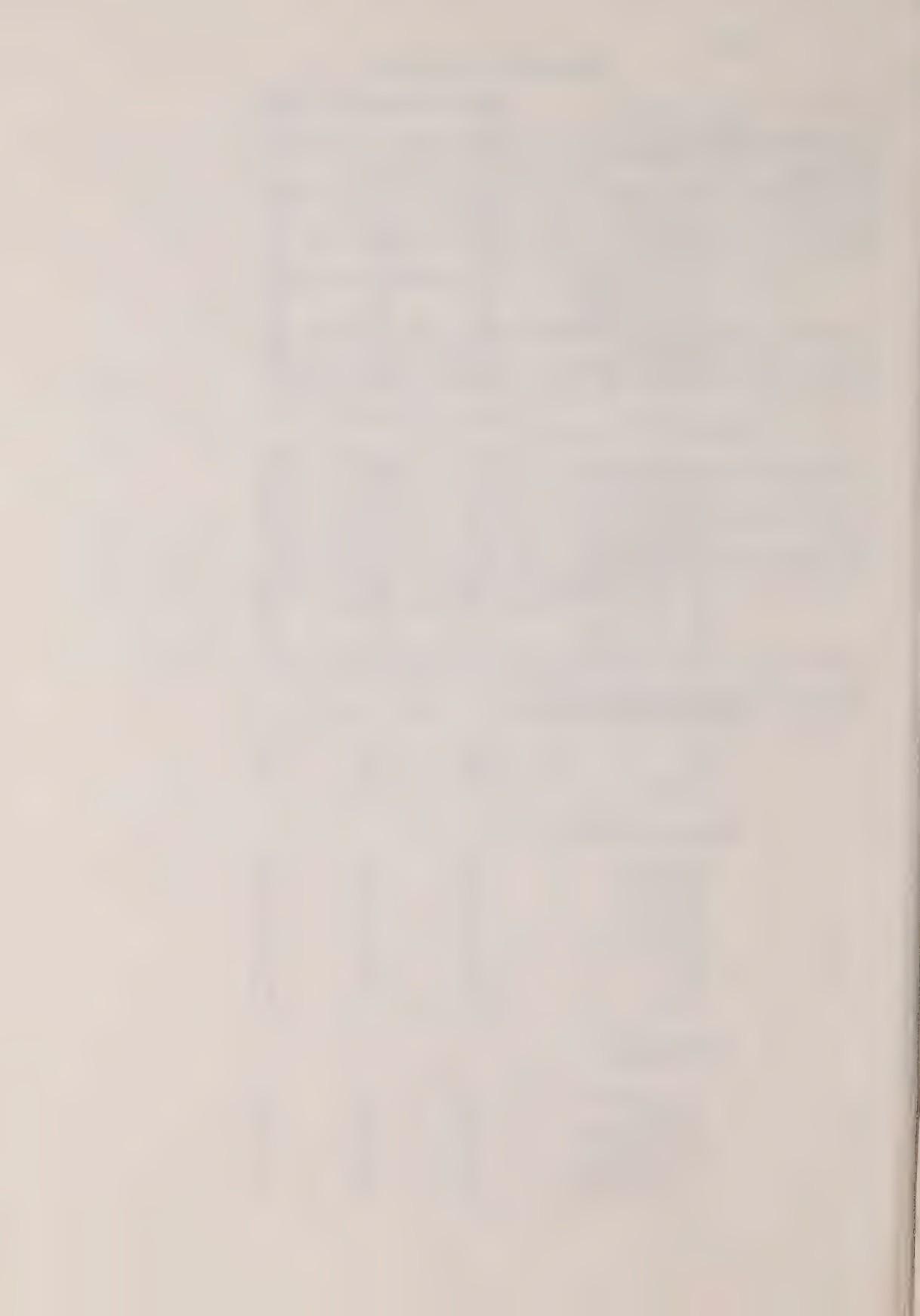
When asked whether they received any information on energy conservation in the last 6 months, just under 40% of those in single family dwellings received material, while only 15% of apartment dwellers received information. Of those in single family dwellings that received energy conservation material, 63% received material from Ontario Hydro or a Municipal utility, 46% from a gas company and 24% from government.

For those receiving information from Hydro or a Municipal utility, three quarters in single family dwellings felt the material was at least somewhat useful and 24% took some action as a result of the information contained in the material received.

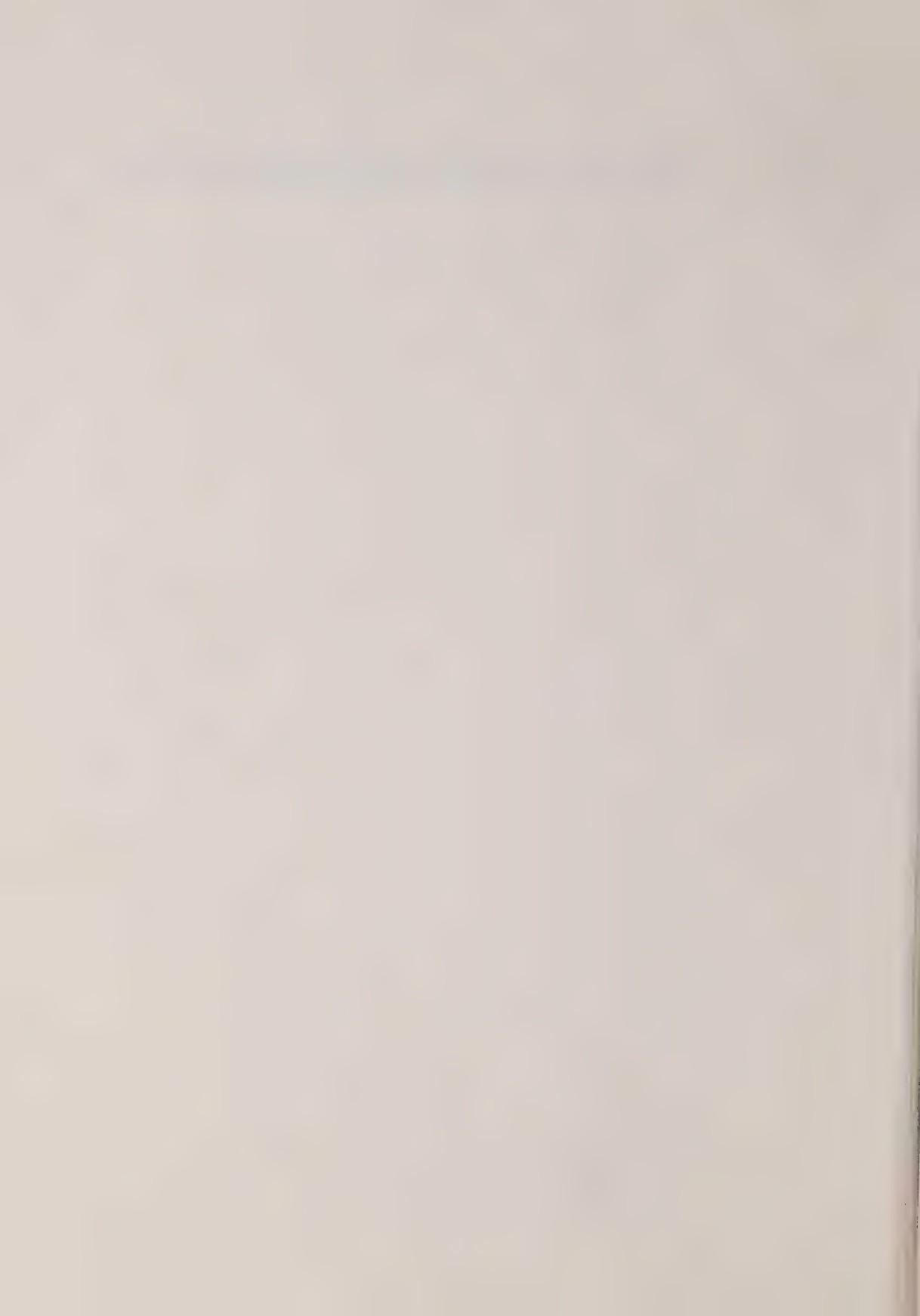
Table 2

Energy Conservation Results

Energy Saving Measures Taken In Past Two Years	Single Family %	Municipal %	Rural Retail %
Insulation in Attic	23.7	21.9	24.5
Insulation in Walls	14.6	12.4	18.7
Insulation in Floors	04.8	03.9	06.8
Insulated Doors	11.7	10.7	13.1
Double/Triple Glazing	18.3	17.3	18.4
High Efficiency Heating	07.0	06.8	06.4
High Efficiency Cooling	03.4	03.6	02.3
High Efficiency Appliances	05.3	04.8	06.2
Heat Recovery	00.6	00.4	00.9
Solar Energy System	00.2	00.2	00.4
None of the Above	59.2	61.5	59.1
<u>Feel House Needs:</u>			
Insulation in Attic	07.8	07.1	08.8
Insulation in Walls	11.3	11.3	10.4
Insulation in Floors	05.3	04.8	06.3
Insulated Doors	10.6	10.3	10.7
Double/Triple Glazing	14.3	14.6	14.0
High Efficiency heating	08.4	08.3	08.2
High Efficiency Cooling	05.2	05.4	04.2
High Efficiency Appliances	02.8	03.1	02.8
Heat Recovery	02.8	02.7	03.2
Solar Energy System	01.9	01.7	02.3
None of the Above	70.3	70.6	70.5
<u>Received Energy Conservation Information in Past 6 Months</u>			
Yes	38.5	38.2	36.2
No	50.6	50.6	52.8
Not Stated	10.9	11.2	11.0
<u>Information Came From....</u>			
Ontario Hydro	51.3	44.8	75.1
Municipal Utility	12.4	16.0	02.0
Government	23.5	23.0	23.9
Gas Company	45.8	52.6	18.0
Home Show	13.7	13.4	13.9
Contractor	05.4	05.5	04.4
Other	08.1	08.1	07.9
Not Stated	04.1	04.5	02.8
<u>Information From Hydro or Municipal Utility...</u>			
Extremely Useful	06.5	06.2	07.0
Very Useful	25.6	25.4	25.4
Somewhat Useful	46.1	45.8	45.6
Not Very Useful	08.3	08.8	08.1
Not at all Useful	03.7	04.0	03.7
Not Stated	09.9	09.9	10.3



SECTION II - PROVINCIAL SATURATION STATISTICS



Appliance Saturation By Region

Region	Central	Western	Eastern	Georgian	North-Bay	North-eastern	North-western	Total
Households Surveyed								
November, 1988	1,563,606	546,578	433,638	164,838	168,138	69,199	2,945,997	
Appliances	%	%	%	%	%	%	%	%
Electric Range	93.5	88.8	97.1	95.6	97.7	96.1		93.6
Gas Range	08.0	13.3	03.1	04.6	02.4	04.6		07.7
Microwave Oven	56.2	66.5	61.8	64.3	67.4	66.2		60.3
Frost-Free Refrigerator	76.7	84.1	78.5	82.6	79.6	81.1		78.9
Freezer (Stand Alone)	52.2	66.4	64.5	73.8	69.6	70.6		59.3
Other Refrigerator	40.3	40.3	41.4	40.8	41.8	36.9		40.5
Dishwasher	41.6	43.8	47.9	46.6	41.0	41.2		43.2
Clothes Washer	73.5	84.9	82.1	89.7	87.6	88.6		79.0
Electric Clothes Dryer	62.3	70.1	75.5	80.6	79.4	79.4		68.1
Gas Clothes Dryer	04.9	10.4	01.0	02.6	01.7	01.9		04.9
Colour Television	97.6	98.2	97.2	97.6	97.9	98.2		97.7
Black & White Television	16.8	21.3	21.3	20.7	20.9	19.8		18.9
VCR	56.6	54.3	57.4	55.1	59.7	60.8		56.5
Personal Computer	18.7	15.3	18.8	14.9	14.8	15.5		17.6
Sentinel Lights	05.3	08.7	10.1	10.8	08.6	05.7		07.1
Electronic Air Cleaner	15.3	15.1	11.5	07.7	05.4	06.7		13.5
Window Air Conditioner	23.5	29.3	18.5	14.5	09.3	07.7		22.1
Central Air Conditioner	31.2	30.4	20.4	09.1	02.4	03.9		25.9
Furnace Humidifier	29.8	32.5	21.9	16.5	16.7	16.8		27.4
Electric Water Heater	33.6	35.2	62.0	70.9	56.3	50.2		41.8
Gas Water Heater	49.4	54.8	23.9	17.6	33.2	39.5		43.7
Switched Water Heater								
Fuel Electric to Gas	03.7	03.5	04.1	02.5	07.2	07.0		03.9
Electric Space Heating	14.9	16.1	31.3	42.5	35.8	24.2		20.5
Gas Space Heating	59.3	66.1	31.2	24.0	41.2	51.3		53.2
Oil Space Heating	15.3	12.3	29.2	26.4	16.9	17.8		17.6
Wood Furnace	00.7	01.4	04.6	05.3	05.9	09.0		02.1
Heat Pump	03.3	02.7	04.5	02.8	00.3	00.9		03.2
High Efficiency (Gas/Oil)	12.9	14.0	11.6	11.9	18.5	16.8		13.3
Natural Gas Availability	74.2	78.3	55.6	36.2	68.7	63.1		69.5

Appliance Saturation by Rate Class

Rate Class	Rural Retail Residential			Municipal		Total
	High Density R1	Low Density R2	Farm	Single Metered	Bulk Metered	
Households Surveyed						
November, 1988	276,883	216,967	105,686	1,855,298	491,162	2,945,997
Appliances	%	%	%	%	%	%
Electric Range	94.9	94.2	90.9	92.2	98.5	93.6
Gas Range	05.8	06.0	09.9	09.6	01.7	07.7
Microwave Oven	70.8	69.2	66.3	62.4	40.9	60.3
Frost-Free Refrigerator	85.2	83.0	82.2	84.4	52.2	78.9
Freezer (Stand Alone)	73.9	79.0	82.9	61.3	29.7	59.3
Other Refrigerator	37.8	41.1	43.1	37.4	52.9	40.5
Dishwasher	48.5	46.3	48.2	47.7	20.5	43.2
Clothes Washer	92.6	93.2	93.7	88.8	24.8	79.0
Electric Clothes Dryer	84.3	84.6	82.4	75.0	22.5	68.1
Gas Clothes Dryer	03.5	02.1	03.9	06.5	01.2	04.9
Colour Television	98.5	97.5	96.6	98.2	95.5	97.7
Black & White Television	21.5	24.3	24.8	19.1	12.8	18.9
VCR	61.9	61.1	47.1	59.6	41.7	56.5
Personal Computer	17.8	15.7	15.5	19.8	10.2	17.6
Sentinel Lights	08.2	14.4	26.8	06.1	02.6	07.1
Electronic Air Cleaner	10.3	08.6	07.6	17.3	04.2	13.5
Window Air Conditioner	15.9	14.6	16.3	21.5	32.5	22.1
Central Air Conditioner	16.6	12.6	09.9	32.8	14.6	25.9
Furnace Humidifier	21.0	15.6	19.3	37.3	00.5	27.4
Electric Water Heater	62.8	83.3	81.5	37.8	18.7	41.8
Gas Water Heater	27.5	05.1	07.5	53.2	42.0	43.7
Switched Water Heat						
Fuel Electric to Gas	04.0	00.7	01.0	05.3	00.6	03.9
Electric Space Heating	37.9	45.7	19.6	13.2	27.3	20.5
Gas Space Heating	35.5	08.2	11.7	66.1	43.7	53.2
Oil Space Heating	22.2	36.3	55.6	16.0	04.2	17.6
Wood Furnace	03.8	11.7	15.8	00.6	00.0	02.1
Heat Pump	03.7	05.4	03.9	03.1	01.5	03.2
High Efficiency (Gas/Oil)	15.7	10.7	11.3	14.7	04.2	13.3
Natural Gas Availability	54.2	15.3	18.0	84.6	56.4	69.5

Appliance Saturation by Housing Type

Housing Type	Single Family*	Apartments**	Total
Households Surveyed November, 1988	2,325,846	620,151	2,945,997
Appliances	%	%	%
Electric Range	92.3	98.3	93.6
Gas Range	09.2	01.9	07.7
Microwave Oven	65.4	41.2	60.3
Frost-Free Refrigerator	86.2	51.5	78.9
Freezer (Stand Alone)	67.4	29.0	59.3
Other Refrigerator	37.2	53.0	40.5
Dishwasher	49.3	20.3	43.2
Clothes Washer	93.5	24.2	79.0
Electric Clothes Dryer	80.4	21.8	68.1
Gas Clothes Dryer	06.0	01.1	04.9
Colour Television	98.3	95.3	97.7
Black & White Television	20.5	12.8	18.9
VCR	60.3	42.4	56.5
Personal Computer	19.4	10.6	17.6
Sentinel Lights	08.3	02.6	07.1
Electronic Air Cleaner	15.9	04.6	13.5
Window Air Conditioner	19.6	31.6	22.1
Central Air Conditioner	29.3	13.4	25.9
Furnace Humidifier	34.5	00.5	27.4
Electric Water Heater	46.5	24.5	41.8
Gas Water Heater	45.5	36.9	43.7
Switched Water Heat			
Fuel Electric to Gas	04.8	00.5	03.9
Electric Space Heating	18.5	27.7	20.5
Gas Space Heating	57.0	39.3	53.2
Oil Space Heating	20.9	04.9	17.6
Wood Furnace	02.7	00.0	02.1
Heat Pump	03.5	02.7	03.2
High Efficiency (Gas/Oil)	14.6	04.2	13.3
Natural Gas Availability	74.1	52.4	69.5

* INCLUDES SINGLE DETATCHED, ATTACHED, ROW, TOWNHOUSES, 2-4 PLEXES AND MOBILES

** INCLUDES APARTMENTS OF 5 OR MORE UNITS

**Appliance Saturation by KW.h Usage Ranges
Single Family Dwellings**

Annual Consumption (KW.h)	500-5000	5,001-15,000	15,001-30,000	Over 30,000
Households Surveyed November, 1988	246,601	1,227,260	483,552	134,206
Appliances	%	%	%	%
Electric Range	83.5	91.2	97.2	97.6
Gas Range	18.2	10.7	04.0	03.4
Microwave Oven	46.2	63.4	75.4	79.0
Frost-Free Refrigerator	73.6	87.3	89.0	91.1
Freezer (Stand Alone)	44.0	67.8	78.3	79.4
Other Refrigerator	37.2	36.1	41.1	42.1
Dishwasher	23.7	46.2	62.7	74.8
Clothes Washer	83.2	94.5	96.5	98.0
Electric Clothes Dryer	58.9	78.9	90.6	94.9
Gas Clothes Dryer	08.0	07.7	03.0	00.9
Colour Television	95.4	98.5	99.1	99.2
Black & White Television	18.6	20.4	21.9	21.8
VCR	41.5	58.5	68.4	72.1
Personal Computer	10.9	18.1	24.0	29.0
Sentinel Lights	05.4	06.7	10.9	19.1
Electronic Air Cleaner	06.4	15.1	22.3	22.1
Window Air Conditioner	19.2	20.7	19.4	18.4
Central Air Conditioner	12.8	31.4	32.6	31.4
Furnace Humidifier	24.2	40.1	30.8	22.0
Electric Water Heater	32.0	37.2	72.2	86.4
Gas Water Heater	56.6	55.2	20.5	06.2
Switched Water Heater				
Fuel Electric to Gas	05.1	05.9	03.1	01.0
Electric Space Heating	10.8	06.3	40.2	70.9
Gas Space Heating	64.4	63.4	24.1	06.3
Oil Space Heating	13.2	19.4	19.4	10.9
Wood Furnace	01.8	02.2	04.5	04.7
Heat Pump	01.0	01.4	08.0	13.1
High Efficiency (Gas/Oil)	11.1	14.2	16.6	17.6
Natural Gas Availability	76.4	82.3	58.1	39.4

**Appliance Saturation by Age
of Single Family Dwellings**

Year Built	Before 1961	1961- 1970	1971- 1982	1983- 1985	1986- 1988
Households Surveyed November, 1988	1,620,711	445,652	586,795	136,143	156,695
Appliances	%	%	%	%	%
Electric Range	91.1	96.0	96.7	97.2	97.9
Gas Range	10.1	05.6	04.6	03.8	02.9
Microwave Oven	53.5	62.7	69.7	72.4	77.1
Frost-Free Refrigerator	74.2	76.8	86.5	92.0	93.8
Freezer (Stand Alone)	56.1	63.2	64.3	61.3	60.4
Other Refrigerator	44.3	47.4	33.6	25.1	21.4
Dishwasher	34.1	45.2	56.0	63.7	64.9
Clothes Washer	75.0	.77.5	85.0	90.9	91.5
Electric Clothes Dryer	61.4	66.8	78.5	85.7	86.4
Gas Clothes Dryer	05.8	05.9	03.1	01.9	02.5
Colour Television	97.0	98.1	98.7	98.8	98.6
Black & White Television	18.1	19.2	20.8	19.4	18.2
VCR	49.1	59.8	62.7	72.1	70.3
Personal Computer	13.9	18.0	23.9	27.1	22.8
Sentinel Lights	06.7	06.6	07.7	08.0	09.2
Electronic Air Cleaner	10.5	15.9	16.6	20.0	20.1
Window Air Conditioner	26.2	21.4	17.5	12.2	07.9
Central Air Conditioner	18.0	29.4	36.3	44.4	43.4
Furnace Humidifier	24.2	31.0	32.2	32.3	27.7
Electric Water Heater	43.8	36.7	39.4	39.8	41.4
Gas Water Heater	40.2	47.8	47.6	48.7	49.8
Switched Water Heater					
Fuel Electric to Gas	05.3	03.2	01.5	01.4	02.8
Electric Space Heating	13.6	19.9	29.2	34.5	33.4
Gas Space Heating	47.6	52.3	50.9	54.0	56.8
Oil Space Heating	20.6	13.7	08.4	01.0	00.7
Wood Furnace	02.0	01.1	03.0	03.5	02.2
Heat Pump	02.2	03.1	04.1	06.4	04.8
High Efficiency (Gas/Oil)	13.6	11.1	07.0	20.5	34.5
Natural Gas Availability	70.5	72.5	65.2	67.0	69.3

SECTION III - REGIONAL SATURATION STATISTICS

**Appliance Saturation By Region
for Municipal Single Metered Respondents**

Region	Central	Western	Eastern	Georgian	North-Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	1,089,271	357,119	229,998	58,509	76,195	45,196	1,855,298	
Appliances	%	%	%	%	%	%	%	%
Electric Range	91.6	88.1	97.9	95.3	97.6	97.7	92.2	
Gas Range	10.5	12.7	02.4	05.0	02.6	03.2	09.6	
Microwave Oven	60.1	64.8	63.0	63.0	68.5	66.3	62.4	
Frost-Free Refrigerator	84.1	87.0	82.1	84.1	84.0	83.1	84.4	
Freezer (Stand Alone)	57.8	62.1	64.0	68.5	70.9	69.6	61.3	
Other Refrigerator	36.3	39.3	38.8	37.9	41.4	35.8	37.4	
Dishwasher	47.6	45.4	54.0	46.1	45.7	43.4	47.7	
Clothes Washer	87.9	91.6	88.2	88.9	88.9	89.0	88.8	
Electric Clothes Dryer	73.1	74.3	80.9	79.1	81.0	80.0	75.0	
Gas Clothes Dryer	06.4	12.2	01.2	04.2	02.2	01.9	06.5	
Colour Television	98.1	98.5	97.9	97.8	98.9	98.2	98.2	
Black & White Television	17.9	21.9	20.2	19.3	20.5	19.6	19.1	
VCR	60.5	54.5	59.5	53.6	61.7	59.6	59.6	
Personal Computer	21.4	15.9	21.4	14.7	16.8	15.5	19.8	
Sentinel Lights	05.6	05.9	09.1	05.2	04.4	06.8	06.1	
Electronic Air Cleaner	19.2	17.3	16.0	09.3	06.2	07.7	17.3	
Window Air Conditioner	21.5	28.0	19.5	18.1	08.2	07.6	21.5	
Central Air Conditioner	32.1	36.5	26.9	09.1	02.7	04.1	32.8	
Furnace Humidifier	40.2	40.7	30.8	22.1	20.5	20.6	37.3	
Electric Water Heater	35.7	26.4	57.6	52.3	52.0	34.6	37.8	
Gas Water Heater	54.9	66.8	31.7	36.6	39.1	56.2	53.2	
Switched Water Heater								
Fuel Electric to Gas	05.0	04.4	06.4	06.1	08.3	09.8	05.3	
Electric Space Heating	10.0	10.0	21.4	32.0	32.8	15.8	13.2	
Gas Space Heating	68.2	80.3	42.9	50.0	48.6	71.6	66.1	
Oil Space Heating	16.4	07.3	30.2	14.6	14.7	09.2	16.0	
Wood Furnace	00.4	00.3	00.9	01.0	01.5	02.8	00.6	
Heat Pump	03.5	01.9	05.2	01.5	00.3	00.5	03.1	
High Efficiency (Gas/Oil)	14.6	14.8	12.7	14.1	20.1	19.0	14.7	
Natural Gas Availability	85.0	91.5	77.0	70.0	79.6	85.0	84.6	

**Appliance Saturation By Region
for Municipal Bulk Metered Respondents**

Region	Central	Western	Eastern	Georgian	North-Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	374,412	55,384	51,010	4,201	5,926	230	491,163	
Appliances	%	%	%	%	%	%	%	%
Electric Range	98.5	99.0	97.8	100.0	98.1	100.0		98.5
Gas Range	01.7	01.3	02.2	00.0	02.5	00.0		01.7
Microwave Oven	40.7	47.7	33.5	35.5	52.9	50.0		40.9
Frost-Free Refrigerator	52.3	56.7	47.7	55.4	37.6	50.0		52.2
Freezer (Stand Alone)	28.6	38.1	27.8	38.0	35.7	00.0		29.7
Other Refrigerator	52.3	50.6	58.6	47.6	63.0	100.0		52.9
Dishwasher	21.0	20.5	18.6	08.0	14.9	00.0		20.5
Clothes Washer	26.3	20.4	19.2	21.7	16.8	50.0		24.8
Electric Clothes Dryer	24.0	16.6	18.0	17.6	19.6	50.0		22.5
Gas Clothes Dryer	01.1	03.1	00.0	01.4	01.2	50.0		01.2
Colour Television	95.8	96.4	92.3	98.0	97.6	100.0		95.5
Black & White Television	12.6	12.5	15.2	16.4	06.6	00.0		12.8
VCR	43.9	35.3	33.6	21.0	49.8	50.0		41.7
Personal Computer	10.8	07.1	10.6	04.5	04.7	00.0		10.2
Sentinel Lights	02.4	04.1	03.2	03.5	01.2	00.0		02.6
Electronic Air Cleaner	04.5	04.6	02.0	04.1	01.2	00.0		04.2
Window Air Conditioner	31.2	52.8	23.0	21.5	14.2	00.0		32.5
Central Air Conditioner	16.4	04.9	14.1	00.0	00.6	00.0		14.6
Furnace Humidifier	00.7	00.4	00.0	00.0	00.0	00.0		00.5
Electric Water Heater	15.3	26.0	32.9	27.3	33.4	50.0		18.7
Gas Water Heater	43.6	43.8	29.6	27.5	36.0	00.0		42.0
Switched Water Heater								
Fuel Electric to Gas	00.4	00.8	01.6	00.0	00.6	00.0		00.6
Electric Space Heating	22.9	38.1	44.0	46.3	50.7	00.0		27.3
Gas Space Heating	45.8	41.4	32.7	33.3	29.8	100.0		43.7
Oil Space Heating	05.2	01.0	01.4	00.0	00.6	00.0		04.2
Wood Furnace	00.0	00.0	00.0	00.0	00.0	00.0		00.0
Heat Pump	01.7	00.9	00.6	00.0	00.0	00.0		01.5
High Efficiency (Gas/Oil)	04.4	03.7	02.2	05.7	02.0	50.0		04.2
Natural Gas Availability	56.1	61.8	52.8	42.7	60.9	100.0		56.4

**Appliance Saturation By Region
for Rural Retail Respondents***

Region	Central	Western	Eastern	Georgian	North- Bay	North- eastern	North- western	Total
Households Surveyed November, 1988	82,825	91,270	130,204	83,200	83,440	22,910	493,850	
Appliances	%	%	%	%	%	%	%	%
Electric Range	96.7	86.9	96.3	95.6	97.7	93.4	94.6	
Gas Range	03.8	14.9	03.9	04.5	02.2	07.1	05.9	
Microwave Oven	74.0	72.5	70.4	66.6	67.6	66.7	70.1	
Frost-Free Refrigerator	88.1	88.5	84.2	83.0	78.8	77.7	84.2	
Freezer (Stand Alone)	79.3	77.7	76.5	77.3	70.6	72.9	76.1	
Other Refrigerator	38.4	38.5	38.4	41.3	40.4	38.2	39.2	
Dishwasher	54.0	49.0	49.7	47.6	38.6	37.7	47.5	
Clothes Washer	93.2	93.4	94.4	92.5	91.2	88.2	92.9	
Electric Clothes Dryer	88.2	80.3	87.6	84.1	82.1	78.8	84.4	
Gas Clothes Dryer	02.0	09.4	00.8	01.8	01.4	01.4	02.9	
Colour Television	98.6	98.5	98.3	97.6	97.2	98.2	98.1	
Black & White Television	21.1	24.1	24.7	21.0	22.2	20.5	22.7	
VCR	65.1	57.4	66.9	59.3	59.1	64.1	61.5	
Personal Computer	18.9	17.4	18.4	15.3	13.8	15.9	16.9	
Sentinel Lights	10.8	12.7	12.1	11.3	06.7	11.9	10.9	
Electronic Air Cleaner	13.4	14.7	08.5	07.4	05.0	05.1	09.6	
Window Air Conditioner	16.2	22.8	16.2	12.3	09.8	08.0	15.3	
Central Air Conditioner	20.7	29.4	13.9	10.3	02.2	03.5	14.8	
Furnace Humidifier	26.7	24.7	16.2	14.3	14.5	09.7	18.6	
Electric Water Heater	78.9	57.0	76.5	82.4	60.9	79.6	71.8	
Gas Water Heater	11.7	32.9	12.1	07.2	28.7	08.4	17.7	
Switched Water Heater								
Fuel Electric to Gas	01.7	02.4	01.8	00.6	06.9	02.0	02.6	
Electric Space Heating	42.1	26.9	45.0	54.3	37.9	40.9	41.3	
Gas Space Heating	16.2	45.1	15.3	09.9	36.4	12.8	23.5	
Oil Space Heating	36.6	21.4	33.1	28.4	19.0	33.9	28.4	
Wood Furnace	04.7	02.5	09.4	06.1	09.3	20.2	07.3	
Heat Pump	07.3	06.2	05.2	03.7	00.4	01.7	04.4	
High Efficiency (Gas/Oil)	15.4	15.3	10.4	09.7	17.4	08.4	13.5	
Natural Gas Availability	27.2	58.3	27.6	18.4	61.2	21.8	37.1	

* Includes Ontario Hydro Continuous Occupancy Rate Classes R1 and R2

**Appliance Saturation By Region
for Farm Respondents**

Region	Central	Western	Eastern	Georgian	North-Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	17,098	42,805	23,415	18,928	2,576	863	105,686	
Appliances	%	%	%	%	%	%	%	%
Electric Range	94.7	86.4	92.5	95.0	97.1	87.3	90.9	
Gas Range	5.4	15.9	07.2	04.6	01.7	11.2	09.9	
Microwave Oven	64.1	69.7	63.5	65.0	63.3	57.8	66.3	
Frost-Free Refrigerator	80.7	86.3	77.5	82.3	70.4	74.0	82.2	
Freezer (Stand Alone)	83.8	83.1	82.2	82.4	83.0	82.9	82.9	
Other Refrigerator	43.3	39.6	46.0	46.3	49.4	42.5	43.1	
Dishwasher	49.5	50.2	42.4	51.8	38.4	26.2	48.2	
Clothes Washer	94.6	93.6	91.7	95.6	94.2	90.7	93.7	
Electric Clothes Dryer	84.3	82.2	79.8	84.4	84.3	73.5	82.4	
Gas Clothes Dryer	01.9	07.5	01.2	01.5	01.1	02.6	03.9	
Colour Television	96.8	97.4	95.5	96.2	94.2	97.7	96.6	
Black & White Television	21.4	25.8	26.2	24.5	20.4	18.7	24.8	
VCR	46.9	45.6	48.8	49.0	45.0	38.5	47.1	
Personal Computer	17.5	15.6	14.0	16.0	09.6	12.0	15.5	
Sentinel Lights	26.1	29.4	23.0	27.4	22.1	17.7	26.8	
Electronic Air Cleaner	07.7	10.8	04.4	04.7	02.3	04.7	07.6	
Window Air Conditioner	10.2	24.1	11.9	11.1	06.1	08.5	16.3	
Central Air Conditioner	09.6	14.8	06.0	05.8	01.3	01.8	09.9	
Furnace Humidifier	24.6	22.8	15.2	12.8	13.0	07.6	19.3	
Electric Water Heater	85.6	74.0	87.3	87.0	84.9	84.6	81.5	
Gas Water Heater	02.4	15.8	01.3	02.3	01.0	00.4	07.5	
Switched Water Heater								
Fuel Electric to Gas	00.7	01.8	00.1	00.6	00.2	00.0	01.0	
Electric Space Heating	19.1	15.8	23.8	22.5	25.2	24.2	19.6	
Gas Space Heating	03.9	24.5	01.9	03.6	00.8	00.7	11.7	
Oil Space Heating	66.1	48.5	59.1	59.7	47.4	43.9	55.6	
Wood Furnace	14.9	09.7	23.9	16.3	38.3	38.4	15.8	
Heat Pump	05.8	04.6	02.6	03.0	00.4	00.2	03.9	
High Efficiency (Gas/Oil)	09.2	11.9	12.1	11.7	04.0	04.4	11.3	
Natural Gas Availability	09.9	32.5	07.4	08.0	04.5	05.4	18.0	

**Appliance Saturation By Region
for Single Family Dwellings**

Region	Central	Western	Eastern	Georgian	North-Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	1,107,193	478,156	361,886	157,185	155,076	66,350	2,325,846	
Appliances	%	%	%	%	%	%	%	%
Electric Range	91.6	87.5	96.9	95.4	97.6	96.0	92.3	
Gas Range	10.5	15.0	03.3	04.8	02.5	04.8	09.2	
Microwave Oven	62.6	69.2	67.0	65.5	68.6	66.8	65.4	
Frost-Free Refrigerator	87.3	88.1	84.3	83.6	82.2	81.6	86.2	
Freezer (Stand Alone)	52.2	70.8	72.2	75.7	72.2	72.3	67.4	
Other Refrigerator	40.3	38.9	38.5	40.8	41.0	36.7	37.2	
Dishwasher	41.6	47.0	53.3	48.2	43.2	42.4	49.3	
Clothes Washer	93.5	93.9	93.9	93.0	93.1	91.7	93.5	
Electric Clothes Dryer	78.6	77.5	86.3	83.6	84.5	82.4	80.4	
Gas Clothes Dryer	06.5	11.5	01.2	02.6	01.8	01.8	06.0	
Colour Television	98.4	98.4	98.2	97.6	98.0	98.2	98.3	
Black & White Television	18.6	23.0	22.6	21.0	21.6	19.9	20.5	
VCR	61.6	57.0	61.9	56.3	60.5	61.2	60.3	
Personal Computer	21.8	16.3	20.4	15.3	15.6	15.8	19.4	
Sentinel Lights	06.5	09.5	11.5	11.2	06.0	08.9	08.3	
Electronic Air Cleaner	19.6	16.6	13.2	07.7	05.7	06.6	15.9	
Window Air Conditioner	20.2	26.5	17.7	14.1	09.1	08.0	19.6	
Central Air Conditioner	37.9	33.8	21.7	09.4	02.5	04.0	29.3	
Furnace Humidifier	41.9	37.1	26.3	17.3	18.0	17.5	34.5	
Electric Water Heater	39.0	36.1	66.4	72.5	57.2	50.3	46.5	
Gas Water Heater	53.7	56.8	23.8	17.4	33.5	40.2	45.5	
Switched Water Heater								
Fuel Electric to Gas	05.0	03.9	04.7	02.7	07.6	07.3	04.8	
Electric Space Heating	11.6	12.9	29.2	42.3	34.7	23.0	18.5	
Gas Space Heating	66.7	69.9	31.6	23.8	42.2	52.3	57.0	
Oil Space Heating	19.3	13.8	34.2	27.5	18.1	18.5	20.9	
Wood Furnace	01.0	01.6	05.5	05.6	06.3	09.4	02.7	
Heat Pump	03.9	03.0	05.2	02.9	00.3	00.9	03.5	
High Efficiency (Gas/Oil)	14.8	14.7	12.5	12.1	19.1	16.9	14.6	
Natural Gas Availability	83.2	81.0	57.0	36.0	69.8	63.7	74.1	

**Appliance Saturation By Region
for Apartments**

Region	Central	Western	Eastern	Georgian	North-Bay	North-eastern	North-western	Total
Households Surveyed November, 1988	456,413	68,423	71,752	7,652	13,061	2,849	620,151	
Appliances	%	%	%	%	%	%	%	%
Electric Range	98.2	98.6	98.2	98.9	99.2	100.0	98.3	
Gas Range	02.0	01.7	01.8	01.1	01.1	00.0	01.9	
Microwave Oven	40.8	47.5	35.4	40.8	53.1	53.8	41.2	
Frost-Free Refrigerator	50.9	56.5	49.2	61.2	49.1	68.7	51.5	
Freezer (Stand Alone)	28.1	35.5	25.6	34.5	39.1	32.8	29.0	
Other Refrigerator	28.1	50.2	56.0	41.8	51.5	41.1	53.0	
Dishwasher	20.3	21.4	20.9	12.7	15.0	14.2	20.3	
Clothes Washer	24.9	21.8	22.9	22.6	22.1	18.7	24.2	
Electric Clothes Dryer	22.7	18.2	20.7	19.9	19.8	10.2	21.8	
Gas Clothes Dryer	00.9	02.7	00.1	01.1	01.1	04.0	01.1	
Colour Television	95.6	96.4	92.3	97.6	97.8	95.3	95.3	
Black & White Television	12.5	23.0	14.6	13.7	12.6	18.3	12.8	
VCR	44.5	35.5	35.0	56.3	50.1	51.8	42.4	
Personal Computer	11.2	07.9	11.0	06.0	05.2	08.5	10.6	
Sentinel Lights	02.4	03.6	02.8	03.3	02.8	00.0	02.6	
Electronic Air Cleaner	04.8	04.7	03.1	06.2	02.2	10.4	04.6	
Window Air Conditioner	31.4	48.5	22.5	22.3	12.2	00.2	31.6	
Central Air Conditioner	15.1	06.6	13.5	01.7	00.3	00.7	13.4	
Furnace Humidifier	00.6	00.4	00.0	00.7	00.7	00.3	00.5	
Electric Water Heater	20.4	28.9	39.9	37.8	45.5	49.0	24.5	
Gas Water Heater	38.8	41.1	24.4	20.7	29.2	21.7	36.9	
Switched Water Heater								
Fuel Electric to Gas	00.4	00.7	01.2	00.1	01.9	00.0	00.5	
Electric Space Heating	22.7	38.7	42.0	47.4	49.8	52.0	27.7	
Gas Space Heating	41.4	39.4	29.0	28.9	29.3	30.1	39.3	
Oil Space Heating	05.6	01.8	04.3	03.7	01.9	00.3	04.9	
Wood Furnace	00.0	00.0	00.0	00.0	00.3	00.0	00.0	
Heat Pump	01.8	01.2	01.0	00.0	00.0	00.0	01.6	
High Efficiency (Gas/Oil)	04.4	04.0	01.8	07.5	04.3	13.3	04.2	
Natural Gas Availability	52.2	59.1	48.2	39.1	55.9	50.1	52.4	

APPENDIX

Questionnaire



residential appliance survey

Dear Customer

Please help us plan for your future electricity needs by answering the following questions. Upon completion, simply return the form in the enclosed prepaid envelope.

Please do it now while you are thinking about it.

Thank you for your co-operation

Your Hydro

By Authority of the Power Corporation Act of Ontario (Section 56)

If you have any questions call:

Roger Crawford

Ontario Hydro

700 University Avenue C25 A1

TORONTO M8G 1X6

Si vous désirez recevoir un questionnaire en français, composez le 1-800-668-8508

▼ Please detach here ▼

95802 6931 R2

If you live in an apartment building, please complete this form for your own unit only.

APPLIANCES

Please "X" the boxes beside the appliances used in your home

	In use	Number used	Age in Years
	1st	2nd	newest
frost-free refrigerator	1 - 13	1 - 16	1 - 19
other refrigerator	2	2 - 21	2 - 24
freezer (stand alone)	3		2 - 26
dishwasher	4		2 - 28
electric range	5		
gas range	6		
wood-burning range	7		
Microwave oven	8		
washing machine	9		
electric clothes dryer	10		1 - 30
gas clothes dryer	11 - 14		1 - 32
electronic air cleaner	15		
window air conditioner	16	1 - 34	1 - 37
central air conditioner	17	1 - 38	1 - 39
heat exchanger (heat recover ventilator)	18		1 - 41
furnace humidifier	19		
black and white television	20	1 - 43	
colour television	21	1 - 44	
video cassette recorder	22		
personal computer	23		
sentinel lights	24	1 - 15	
electric car block heater	25	1 - 18	
electric swimming pool heater	26	1 - 23	
electric water pump (for well)	27	1 - 4	

Where requested, write in the number and/or estimated age of the appliances. If you have more than one of a certain kind, please give the age of the two newest appliances!

WATER HEATING

What type of fuel is used in your home for water heating?

	Present water heating fuel	Previous water heating fuel
electricity	1 - 46	1 - 17
natural gas	2	2
oil	3	3
propane	4	4
other	5	5
don't know	6	6

If you changed from oil heating, what year did you change?

before 1981	1 - 56
1981-1985	2
1986	3
1987	4
1988	5

If you have a gas or oil furnace, is it a high efficiency condensing furnace? (e.g. PULSE, V.E.L., VEGASAVE, ULTRAMAX, etc.)

yes	1 - 15
no	2
don't know	3

Is natural gas available in your neighbourhood?

CHARACTERISTICS OF YOUR HOME

Type of home you live in

- single family detached 1⁻⁵⁷
 single family semi-detached 2
 townhouse or row house 3
 duplex, triplex, fourplex 4
 apartment (5 or more units) 5
 mobile home 6

Other (WRITE IN) 58-

Are you a ...

- home owner 1⁻⁵⁹
 tenant 2

Is your home a condominium?

- yes 1⁻⁶⁰
 no 2

If you are a tenant or own a condominium, how do you pay for heat and hot water in your home?

	<u>Heat</u>	<u>Hot water</u>
included in rent or maintenance fee <input type="checkbox"/> 1 ⁻⁶¹ <input type="checkbox"/> 1 ⁻⁶²
pay utility directly <input type="checkbox"/> 2 <input type="checkbox"/> 2

When was your home built?

- before 1961 1⁻⁶³
 1961-1970 2
 1971-1982 3
 1983-1985 4
 1986 5
 1987 6
 1988 7

Number of rooms in your home (excluding bathrooms, halls and unfinished rooms)

()

64 65

Number of people living in your household

()

66 67

What is the age of the head of your household?

- under 35 years 1⁻⁶⁸
 35-44 years 2
 45-65 years 3
 over 65 years 4

ENERGY CONSERVATION

Which of the following energy saving measures:

	<u>Have you taken in past two years?</u>	<u>Do you feel your house needs?</u>
insulation in attic <input type="checkbox"/> 1 ⁻⁶⁹ <input type="checkbox"/> 1 ⁻⁷¹
insulation in walls <input type="checkbox"/> 2 <input type="checkbox"/> 2
insulation in floors <input type="checkbox"/> 3 <input type="checkbox"/> 3
insulated door(s) <input type="checkbox"/> 4 <input type="checkbox"/> 4
double/triple glazed windows <input type="checkbox"/> 5 <input type="checkbox"/> 5
high efficiency heating unit <input type="checkbox"/> 6 <input type="checkbox"/> 6
high efficiency cooling unit <input type="checkbox"/> 7 <input type="checkbox"/> 7
high efficiency appliance(s) <input type="checkbox"/> 8 <input type="checkbox"/> 8
heat recovery unit <input type="checkbox"/> 9 <input type="checkbox"/> 9
solar energy system <input type="checkbox"/> 0 <input type="checkbox"/> 0
none <input type="checkbox"/> 1 ⁻⁷⁰ <input type="checkbox"/> 1 ⁻⁷²

In the past 6 months, have you received any information on energy efficiency or conservation?

- yes 1⁻⁷³
 no 2

If yes, where did you get the information from?

- Government 1⁻⁷⁴
 Ontario Hydro 2
 Municipal utility 3
 Home show 4
 Gas company 5
 Contractor 6
 Other 7

If you got the information from Ontario Hydro or municipal utility ...

<u>How useful was the information?</u>	<u>Did you act on it?</u>
extremely useful --- <input type="checkbox"/> 1 ⁻⁷⁵	yes <input type="checkbox"/> 1 ⁻⁷⁶
very useful <input type="checkbox"/> 2	no <input type="checkbox"/> 2
somewhat useful --- <input type="checkbox"/> 3	
not very useful --- <input type="checkbox"/> 4	
not at all useful --- <input type="checkbox"/> 5	

How important is it to use energy more efficiently?

- very important 1⁻⁷⁷
 quite important 2
 somewhat important 3
 not very important 4
 not at all important 5

Please indicate the combined 1987 pretax income from all sources for all members of your household. Your reply is CONFIDENTIAL and will help us assess the impact of electricity rates on various income groups.

- under \$10,000 1⁻⁷⁸
 \$10,000-\$19,999 2
 \$20,000-\$29,999 3
 \$30,000-\$39,999 4
 \$40,000-\$59,999 5
 \$60,000 or over 6

Thank you for your help.

79-0
80-1

Map of Ontario Hydro Regions



Regional boundaries were changed shortly after survey. Reports and special requests are available with new boundaries.

**LIST OF PARTICIPATING
MUNICIPAL UTILITIES**

MUNICIPAL UTILITY	REGION	MUNICIPAL UTILITY	REGION	MUNICIPAL UTILITY	REGION
AJAX	C	GLoucester	E	PICKERING	C
ALVINSTON	W	GRAND BEND	W	PICTON	E
ALLISTON	GB	GRAVENHURST	GB	PORT McNICOLL	GB
ANCASTER	C	GRIMSBY	W	PRESCOTT	E
ARNPRIOR	E	GUELPH	C	RENFREW	E
AURORA	C	HALTON HILLS	C	RICHMOND HILL	C
AYLMER	W	HAMILTON	C	RIDGETOWN	W
BARRIE	GB	HANOVER	GB	RODNEY	W
BELLE RIVER	W	HARROW	W	SARNIA	W
BELLEVILLE	E	INGERSOLL	W	SAULT STE MARIE	NE
BELMONT	W	KANATA	E	SCARBOROUGH	C
BLENHEIM	W	KINGSTON	E	SCHREIBER	NW
BOTHWELL	W	KINGSVILLE	W	SEAFORTH	W
BRACEBRIDGE	GB	LINCOLN	W	SIMCOE	W
BRAMPTON	C	LINDSAY	C	SIOUX LOOKOUT	NW
BRANTFORD	W	LONDON	W	ST CATHARINES	W
BROCK	C	LUCKNOW	GB	ST MARYS	W
BROCKVILLE	E	MARKHAM	C	ST THOMAS	W
BURK'S FALLS	GB	MEAFORD	GB	STONEY CREEK	C
CAMPBELLFORD	E	MILTON	C	STRATFORD	W
CAMBRIDGE N DUMFRIES	C	MISSISSAUGA	C	SUDBURY	NE
CHATHAM	W	MITCHELL	W	TECUMSEH	W
CLINTON	W	N DORCHESTER TWP	W	TERRACE BAY	NW
COLLINGWOOD	GB	NAPANEE	E	THOROLD	W
COMBER	W	NEPEAN	E	THUNDER BAY	NW
CORNWALL	E	NIAGARA FALLS	W	TILBURY	W
COTTAM	W	NIAGARA ON THE LAKE	W	TILLSONBURG	W
DEEP RIVER	E	NIPIGON	NW	TORONTO	C
DRESDEN	W	NORTH BAY	NE	TRENTON	E
DUNDAS	C	NORTH YORK	C	VAUGHAN	C
DUNNVILLE	W	NORWICH	W	WALLACEBURG	W
EAST YORK	C	ORILLIA	GB	WASAGA BEACH	GB
ERIEAU	W	OSHAWA	C	WATERLOO NORTH	C
ERIN	GB	OTTAWA	E	WATFORD	W
ESSEX	W	OWEN SOUND	GB	WELLAND	W
ETOBICOKE	C	PARIS	W	WEST LINCOLN	W
EXETER	W	PARRY SOUND	GB	WEST LORNE	W
FERGUS	C	PELHAM	W	WINDSOR	W
FOREST	W	PEMBROKE	E	WOODSTOCK	W
FORT FRANCES	NW	PENETANGUISHENE	GB	YORK	C
GLENCOE	W	PETERBOROUGH	C	ZORRA	W

LEGEND

C = CENTRAL

W = WESTERN

E = EASTERN

GB = GEORGIAN BAY

NE = NORTHEASTERN

NW = NORTHWESTERN

**LIST OF ONTARIO
ONTARIO HYDRO RURAL RETAIL AREAS**

RURAL RETAIL AREA	REGION	RURAL RETAIL AREA	REGION
ALGOMA	NE	KIRKLAND LAKE	NE
ALLISTON	GB	LAMBTON	W
ARNPRIOR	E	LINCOLN	W
BANCROFT	E	MANITOULIN	NE
HURONIA	GB	MINDEN	GB
BEACHVILLE	W	NEW LISKEARD	NE
BOWMANVILLE (Lakeshore C)	C	NEWMARKET	C
BRACEBRIDGE	GB	NORTH BAY	NE
BROCKVILLE	E	ORANGEVILLE	GB
CLINTON	W	OWEN SOUND	GB
COBDEN	E	PARRY SOUND	GB
COBOURG (Lakeshore B)	C	PENETANGUISHENE	GB
DRYDEN	NW	PERTH	E
DUNDAS	C	PETERBOROUGH	C
EAST ELGIN	W	PICTON	E
ELLIOT LAKE	NE	SIMCOE	W
ESSEX	W	STRATHROY	W
FENELON FALLS	C	SUDBURY	NE
FORT FRANCIS	NW	THUNDER BAY	NW
FRANKFORD	E	TIMMINS	NE
GUELPH	C	TWEED	E
KAPUSKASING	NE	VANKLEEK HILL	E
KENORA	NW	WALKERTON	GB
KENT	W	WARREN	NE
KINGSTON	E	WINCHESTER	E

LEGEND

C = CENTRAL

W = WESTERN

E = EASTERN

GB = GEORGIAN BAY

NE = NORTHEASTERN

NW = NORTHWESTERN



CAZON
EP 20
-ESI

**RESIDENTIAL APPLIANCE
SURVEY 1990
MR 91 - 62
(EXECUTIVE SUMMARY)**

**PROGRAM
SUPPORT
AND
SERVICES
DIVISION**





**RESIDENTIAL APPLIANCE
SURVEY 1990
MR 91 - 62
(EXECUTIVE SUMMARY)**



ISSN0828-1572

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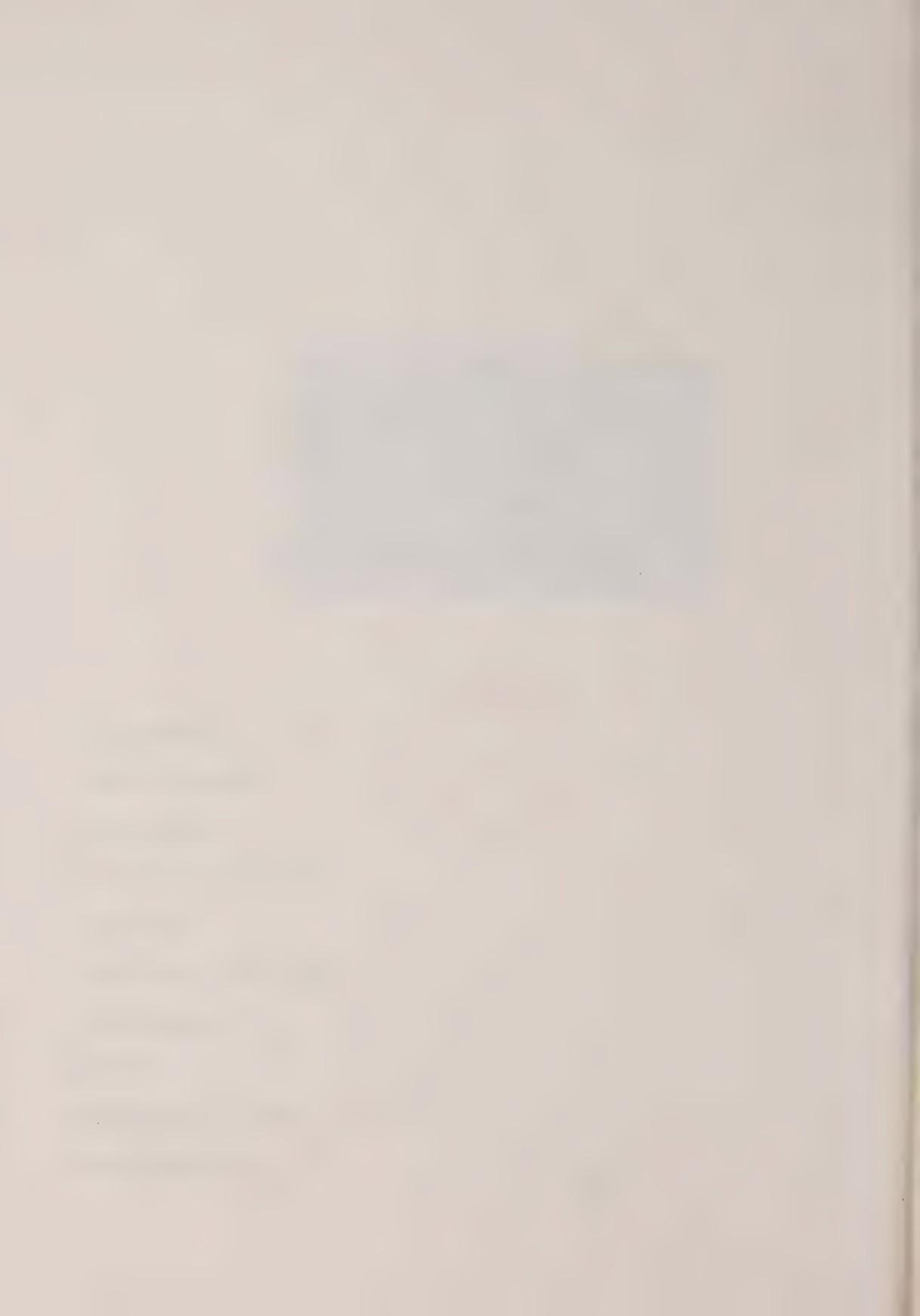


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SECTION II - PROVINCIAL SATURATION STATISTICS

SECTION III - REGIONAL SATURATION STATISTICS

Forward

The Residential Sector accounts for about one-third of total electricity usage in Ontario. The Residential Appliance Survey is the most comprehensive source of information for understanding how Ontario households use electricity and other fuels. This latest survey shows that central air conditioning and a proliferation of smaller products, such as microwaves, computers and VCRs are providing the dynamics to the overall increasing residential consumption of electricity, while higher insulation levels in electrically heated homes, is moderating the all-electric segment of the residential market.

With the conclusion of the 1990 survey, we have thirty years of residential appliance use data. This information assists municipal utilities and Ontario Hydro in planning to meet customers electricity needs through energy management programs. This data also assists in the identification of trends in residential appliance use, providing a reliable indicator for projections of energy demand in the Residential Sector. Finally, the survey forms the basis of other Market Research Department products such as Municipal Utility Profiles and the Market Reference Dataset.

The Executive Summary focuses on Ontario statistics and includes a brief overview of Ontario Hydro's Regions. A more thorough discussion of each Region is available in the full report (MR 91-61). In addition, the report includes consumption estimates for major appliances, space heating and water heating to enable users to estimate their electricity demand requirements.

We would like to acknowledge the cooperation of participating Municipal Utilities. For their assistance, they receive a report customized to their service area and are given access to an on-line database.

We welcome comments and suggestions from all users of the Residential Appliance Survey. If you require information not supplied in this report, please contact Roger Crawford at (416) 592-3843.

J.R. Freeman,
Manager, Market Research Department

1990 Residential Appliance Survey
Participating Municipal Utilities

Municipal Utility	Region	Municipal Utility	Region	Municipal Utility	Region
Ajax	C	Hanover	C	Prescott	E
Alvinston	W	Harrow	W	Renfrew	E
Amherstburg	W	Ingersoll	W	Richmond Hill	C
Arthur	C	Kanata	E	Ridgetown	W
Atikokan	NW	Killaloe	E	Rodney	W
Aylmer	W	Kincardine	C	Sandwich West	W
Bancroft	E	Kingsville	W	Sault Ste. Marie	NE
Barrie	C	Leamington	W	Scarborough	C
Belle River	W	Lindsay	C	Schreiber	NW
Blant-Blenheim	W	London	W	Sioux Lookout	NW
Brantford	W	Lucknow	C	Southampton	C
Brockville	E	Markham	C	St. Catharines	W
Burford	W	Milton	C	St. Thomas	W
Cambridge North		Mississauga	C	Stoney Creek	C
Dumfries	W	Mount Forest	C	Strathroy	W
Chatham	W	Nanticoke	W	Sudbury	NE
Collingwood	C	Nepean	E	Terrace Bay	NW
Comber	W	Newcastle	C	Thamesville	W
Cookstown	C	Niagara Falls	W	Thunder Bay	NW
Deep River	E	Niagara-on-the		Tilbury	W
Delhi	W	Lake	W	Tillsonburg	W
Dryden	NW	Nipigon	NW	Toronto	C
Dundas	C	North Dorchester	W	Trenton	E
East York	C	North Bay	NE	Vaughan	C
Erieau	W	North York	C	Walkerton	C
Erin	C	Norwich	W	Wallaceburg	W
Etobicoke	C	Orillia	C	Wasaga Beach	C
Exeter	W	Oshawa	C	Waterloo North	W
Flamborough	C	Ottawa	E	Welland	C
Glencoe	W	Owen Sound	C	Whitby	C
Gloucester	E	Paisley	C	Windsor	W
Grand Bend	W	Paris	W	Wingham	C
Grand Valley	C	Parry Sound	C	Woodstock	W
Grimsby	W	Pembroke	E	York	C
Guelph	W	Pickering	C	Zorra	W
Haldimand	W	Port Colborne	W		
Hamilton	C	Port Hope	C		

C=Central

G=Georgian Bay

E=Eastern

NE=Northeastern

W=Western

NW=Northwestern

1990 Residential Appliance Survey
Retail System Areas

Retail Area	Region	Retail Area	Region
Algoma	NE	Lambton	W
Arnprior	E	Lincoln	W
Bancroft	E	Manitoulin	NE
Beachville	W	Minden	GB
Brockville	E	Muskoka	GB
Clinton	W	New Liskeard	NE
Cobden	E	Newmarket	GB
Dryden	NW	Nipissing	NE
Dundas	W	Orgeeville	GB
East Elgin	W	Owen Sound	GB
Elliot Lake	NE	Parry Sound	GB
Essex	W	Penetanguishene	GB
Fenelon Falls	GB	Perth	E
Fort Frances	NW	Peterborough	E
Frankford	E	Picton	E
Guelph	W	Simcoe	W
Hockley Hills	GB	Strathroy	W
Huronia	GB	Sudbury	NE
Kapuskasing	NE	Thunder Bay	NW
Kenora	NW	Timmins	NE
Kent	W	Tweed	E
Kingston	E	Vankleek Hill	E
Kirkland Lake	NE	Walkerton	GB
Lakeshore "B"	GB	Winchester	E
Lakeshore "C"	GB		

C=Central

E=Eastern

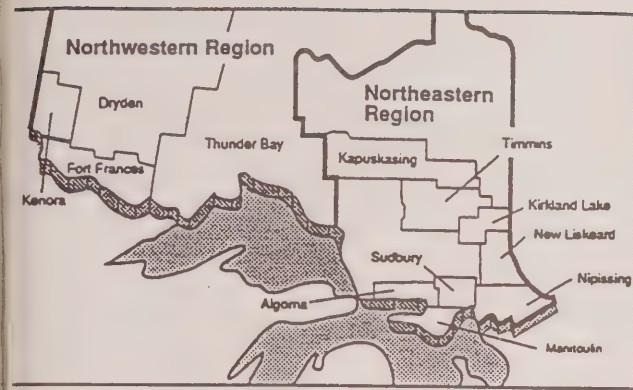
W=Western

GB=Georgian Bay

NE=Northeastern

NW=Northwestern





SECTION I - GENERAL

Table 1
Sample Characteristics and Response

Class of Customer	Municipal		Retail System			Total
	Single Metered Customer	Bulk Metered Apartment	High Density (R1)	Low Density (R2)	Farm	
Total Households Represented as of November 1990	1,871,051	441,250	308,310	236,210	105,299	2,962,120
Number of Questionnaires Mailed	67,086	18,543	15,799	14,338	10,915	126,681
Questionnaires Mailed as a Percent of Households Surveyed	3.6	4.2	5.1	6.1	10.4	4.3
Number of Useable Questionnaires Returned	26,672	2,946	7,273	6,650	4,807	48,348
Returns as a Percent of Questionnaires Mailed	39.8	15.9	46.0	46.4	44.0	38.2
Returns as a Percent of Surveyed Households	1.4	0.7	2.4	2.8	4.6	1.6
Estimated Sample Error (95% Confidence Level)	2.0	5.2	2.1	2.0	1.8	2.0

Survey Method

In the summer of 1990, 110 participating utilities provided Ontario Hydro a random sample of Single Metered Residential households from their customer master file. A random sample of Retail System Residential and Farm households was also selected for each of the 49 Retail System Areas from Ontario Hydro's customer master file (see pages iii-v for the list of participating Municipal Utilities, Retail System Areas and Regional Map).

A sample of bulk-metered apartment dwellers was included to maintain consistency with past survey results. Since there is only one electricity bill per bulk-metered building, questionnaires were addressed to residents of specified suites. The master files containing addresses of bulk-metered apartment buildings were provided by the participating Municipal Utilities.

The random sample, selected from billing records, was stratified by size of supply authority and rate class. Of the 126,681 questionnaires, 48,348 useable responses were returned. The response rate of 38.2% ensures that the results reasonably represent the survey population and therefore a follow-up mailing was not required. Since only computerized Municipal Utilities participated in the 1990 survey (to facilitate data collection), the 1990 survey population represents about 85% of all residential electricity customers in Ontario (see Sample Characteristics and Response, Table 1).

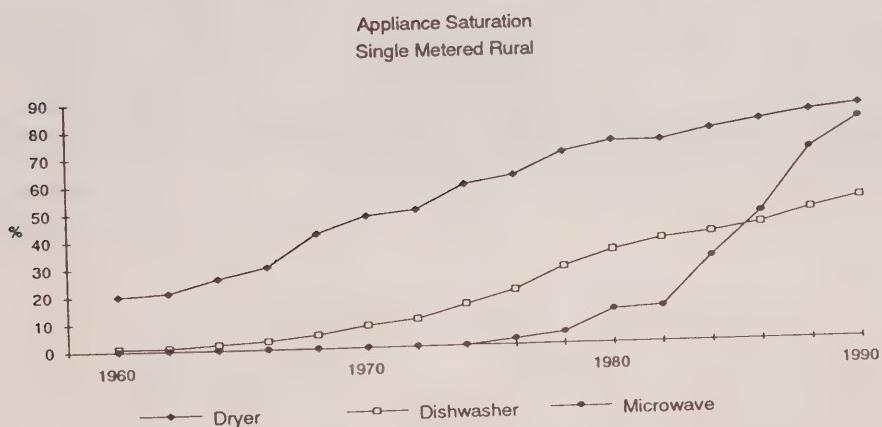
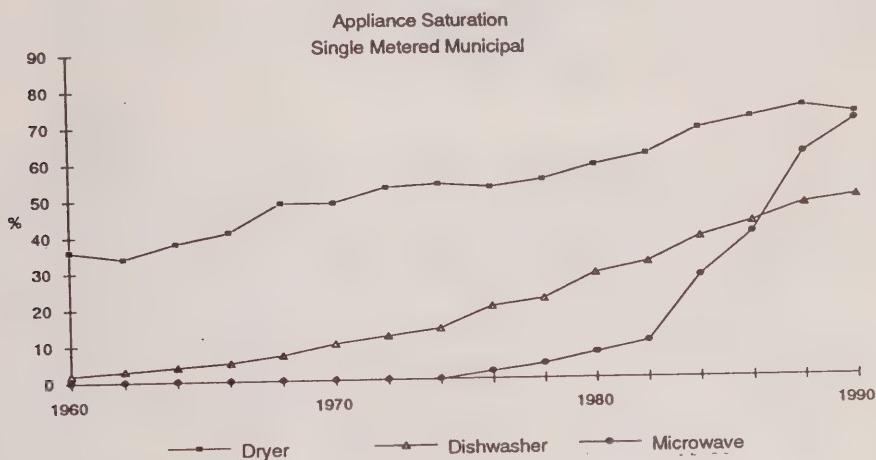
Due to the varying number of customers in each of the 159 survey areas, the sampling fractions were not uniform. The sampling fractions are determined so as to ensure a high and uniform degree of accuracy within the limitations (both sampling and non-sampling) of a mail survey.

No attempt was made to measure non-response bias following our experiences with other prior surveys when it was found to be negligible.

Ontario Statistics

Appliances

Changes in saturation rates among the major appliances ranged from negligible for electric ranges (94% in 1988 and 1990) to increases of almost 5% for frost-free refrigerators (79% to 84%). The saturation rate of microwave ovens rose over 12% to 73% of all Ontario households for that same period. Since 1986, the saturation rate of microwaves has risen 34 per cent. Similar to 1988 patterns, rural customers continue to show higher saturation rates for microwaves than single metered municipal households (81% to 70%).



VCRs were the only other appliance to record double digit increases since 1988 (57% to 67%). This year, information was also gathered on stereos and about two-thirds of all households reported owning one. The saturation rate of personal computers rose moderately from 18% to 22 per cent.

Approximately 37% of single family households own two or more refrigerators, 34% own two or more colour televisions, 3% own two or more sentinel lights and 4% own two or more block heaters. Table 2 reports saturation rates for 1986 and 1990, sorted by the amount of change in saturation levels.

Table 2
Appliance Saturation Levels
1986 and 1990
All Households

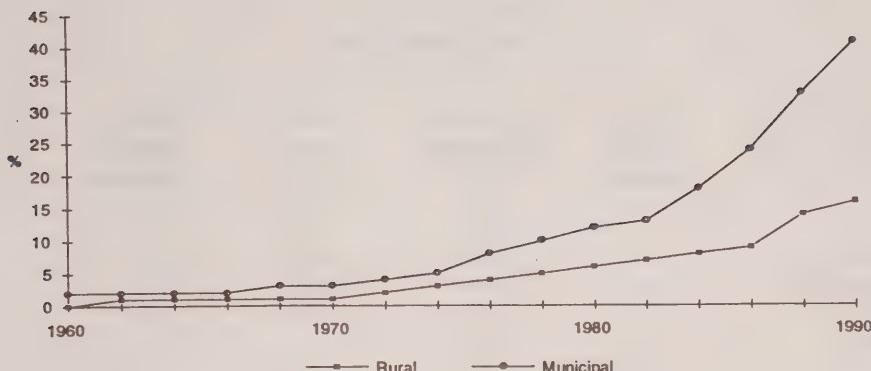
Appliance	1986 (%)	1990 (%)	Change In Saturation '86 - '90 (%)
Microwave	39	73	34
VCR	41	67	26
Personal computer	13	22	9
Frost-free fridge	76	84	8
Dishwasher	38	46	8
B&W TV	25	15	-10
Manual defrost fridge	52	37	-15

Space Conditioning

The incidence of window air conditioners rose slightly from 22% in 1988, to 23% in 1990, while central air conditioning rose significantly by 6% to 32% of all households. Approximately 16% of households with window air conditioners own two units or more.

Ownership of central air increased rapidly among rural customers from 14% to 20%, while the saturation rate for municipal customers rose about 8% to 41% since 1988. 49% of the homes built since 1988 have central air conditioning installed.

Central Air Conditioning



The saturation rate for electric air cleaners rose slightly to 15% while the incidence of furnace humidifiers remained at 28 per cent. Ownership of both items was considerably higher among single metered municipal customers. 19% of municipal customers owned an electric air cleaner, compared to 10% of Retail System customers. Similarly, 38% of municipal customers own a furnace humidifier against 18% for their rural counterparts.

With respect to space heating, this year's survey incorporated the methodology developed for the 1986 survey. Rather than ask respondents for their main heating fuel, which caused some problems in earlier surveys because of the increasing number of dual heating systems (eg. add-on heat pumps, plenum heaters, air-tight wood stoves) respondents were asked to check off all heating equipment in the home. This allows us to determine what combination of heating equipment is used in the home.

All-electric space heating is at 19.6% of single family homes (18.5% in 1988) and 30.1% of apartments (27.7% in 1988). Electric space heating continues to be popular with new homes. Among homes built since 1988, 34% have installed electric heating systems.

With respect to other heating fuels, 58% of single family homes have natural gas and 18% have oil space heating. About 4% of single family homes own a heat pump. Supplementary baseboard heating was present in 3% of the homes with natural gas furnaces and 2% of the homes with oil furnaces. Air tight wood stoves continue to be popular as a supplementary heating system. 10% of single family households reported owning the item; 5% of the homes with electric heating own an air tight wood stove. Table 3 shows the breakdown for space heating fuels between municipal and rural customers.

Table 3
Type Of Space Heating Fuel

Type of Fuel	Single Metered Municipal (%)	Bulk Metered Apartments (%)	Retail System (%)	All Single Family Households (%)
Electric	14	49	39	20
Natural Gas	68	30	22	58
Oil	13	3	30	18
Wood	0.5		8	2
Propane	0.2		3	1

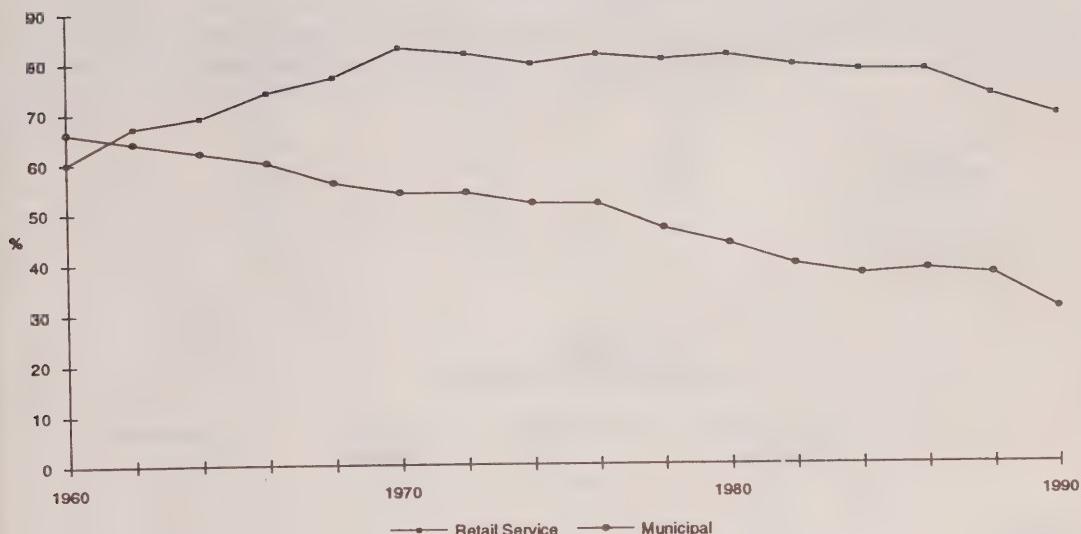
Water Heating

The use of electric water heating continues to decline in the province. 37% of all respondents have electric water heating and 45% have natural gas (1988 saturation rates were 42 and 44% respectively). The remaining 18% is comprised mainly of respondents living in apartments who do not know their water heating fuel (15%). Among single family households, 42% reported having electric water heater and 46% used natural gas (10% did not know). Only 40% of the single family homes built since 1988 installed an electric water heater.

Since 1988, 21% of the households surveyed reported replacing their water heaters. 4% of all households reported switching from electric water heating to natural gas. Switching from electric water heating to natural gas was twice as high in single metered municipal homes than rural homes (6% vs. 3%).

26% of single family households owned their water heater, 57% rented and 16% did not know if they owned their unit. Ownership of water heaters was significantly higher among rural customers (47% to 18% for single metered municipal homes) and for homes with electric water heating (47% to 12% for natural gas tanks).

Electric Water Heating



Household and Respondent Characteristics

66% of the respondents live in single family detached households, 14% live in attached homes (semi-detached to fourplexes), 19% live in apartments and 1% live in mobile homes. Approximately 75% of municipal customers live in single family dwellings while virtually all retail service customers live in single family dwellings. 75% of the respondents own their home and 5% live in condominiums. 64% of the homes were under 2000 square feet in size. With respect to natural gas availability, 70% of all households reported having natural gas available on their street; as expected, availability was much higher among municipal customers (84%) than rural homes (36%). Just over 18% of all single family households own a high efficiency gas or oil furnace. Table 4 below outlines the age distribution of homes in the survey. Tables 5 and 6 outline the age and income distribution of the respondents.

Table 4
Year Home Was Built

	Single Metered Municipal (%)	Retail System (%)	All Single Family Households (%)
Pre 1961	52	41	49
1961 - 1970	16	13	15
1971 - 1982	17	25	20
1983 - 1987	9	11	10
1988 - 1990	6	9	6

Table 5
Age Of Head Of Household

	Single Metered Municipal (%)	Retail System (%)	Apartment Dwellers (%)	All Households (%)
Under 35	18	18	28	19
35 - 44	23	24	15	22
45 - 65	35	36	25	34
Over 65	21	19	27	21

Table 6
Household Income

	Single Metered Municipal (%)	Retail System (%)	Apartment Dwellers (%)	All Households (%)
Under \$20,000	13	17	24	16
\$20 - 39,999	24	28	34	26
\$40 - 59,999	22	22	15	21
\$60 - 79,999	13	10	6	12
Over \$80,000	14	9	4	11

Energy Saving Measures

In the 1988 survey, respondents were asked to check off energy savings activities they had completed in the last two years and energy conservation upgrades home owners felt their home needed. For the 1990 survey, respondents were asked to check off energy conserving items they currently had and those items they felt their home needed. This new method provides a reference point and baseline saturation levels which were unavailable using the previous design.

Among single family households, 84% had attic insulation, 68% had wall insulation, 18% had floor insulation and 48% had basement insulation. In general rural households had a higher incidence of insulation than single metered municipal homes. The most commonly stated

items needed for the home were double/triple glazed windows (16%), compact fluorescent light bulbs (15%), an energy saving thermostat (14%) and insulated doors (14%). In addition, individuals renting single family dwellings were more likely to feel their home needed improvements. All-electric households recorded slightly higher saturation levels of energy conservation upgrades; in most cases, saturation levels were closely aligned with those of Retail System respondents. For the majority of items, respondents with all electric heating were less likely to feel an energy saving measure was required.

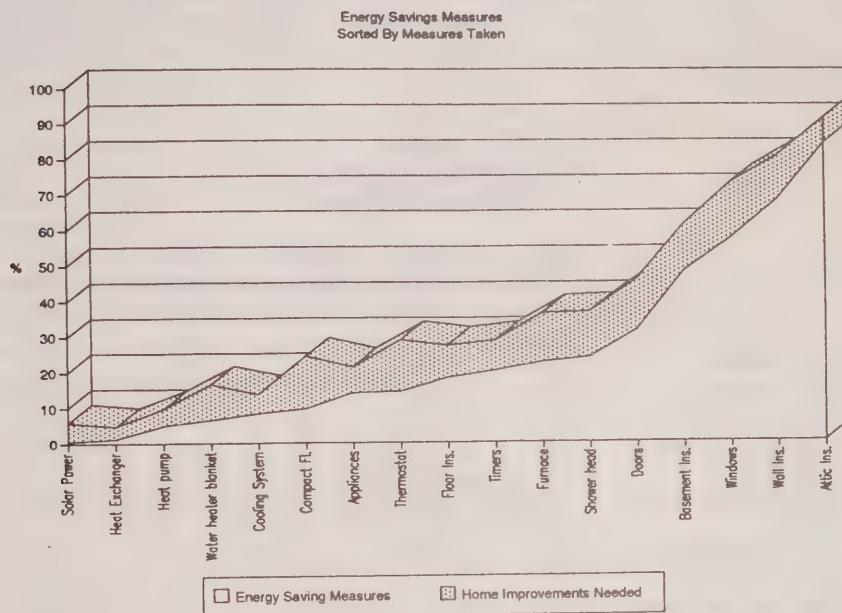
Table 7
Energy Savings Measures Taken

Item	Municipal Homes (%)	Rural Homes (%)	Single Family Households (%)
Attic insulation	77	89	84
Wall insulation	59	82	68
Floor insulation	15	24	18
Basement insulation	45	49	48
Insulated door(s)	27	38	32
Double/triple glazed windows	52	64	57
High efficiency furnace	22	21	23
High efficiency cooling	9	5	8
Heat pump	4	6	5
High efficiency appliance(s)	13	16	14
Heat exchanger	1	2	1
Water heater blanket	6	8	6
High efficiency shower head	22	25	24
Compact fluorescent bulb(s)	9	10	10
Timers for lights	21	15	20
Thermostat that lowers temperature	15	13	14
Solar energy system	0.4	1	1

Table 8
Home Improvements Needed

Feel House Needs...	Municipal Homes (%)	Rural Homes (%)	Own a Home (%)	Rent a Home (%)	Single Family Homes (%)
Attic insulation	7	8	6	16	7
Wall insulation	13	10	11	24	12
Floor insulation	9	10	8	22	9
Basement insulation	13	12	12	24	13
Insulated door(s)	14	14	13	30	14
Double/triple glazed windows	16	15	15	29	16
High efficiency furnace	14	12	13	21	14
High efficiency cooling	6	4	5	10	6
Heat pump	4	6	5	7	5
High efficiency appliance(s)	7	7	7	12	7
Heat exchanger	3	3	3	6	4
Water heater blanket	9	12	10	14	10
High efficiency shower head	13	13	12	19	13
Compact fluorescent bulb(s)	14	16	15	19	15
Timers for lights	8	8	8	13	8
Thermostat that lowers temperature	15	13	14	22	14
Solar energy system	5	5	5	8	5

The chart below illustrates those items home owners show greatest interest in, sorted by energy saving measures currently undertaken. Some of the energy saving measures with low incidences, such as the compact fluorescent bulb, are viewed as being a definite future need by home owners. Items with higher existing saturation rates, such as attic insulation, tend to experience lower "feel home needs" rates. This information can be used to estimate growth potential for energy saving measures, and determine when a measure is approaching its saturation limit.



The percentage of energy saving measures taken and the percentage of measures customers feel their home needs can be used to assign a kW potential to an initiative. For example, the kW potential, based on customer needs of the compact fluorescent light bulb initiative can be estimated as follows:

Estimating kW Potential for Compact Fluorescent Light Bulbs	Measures Taken	Feel Home Needs
# of SF HHLDs	2.75 million	2.75 million
% of SF HHLDs have/want a bulb	10%	15%
Potential # of HHLDs	0.28 million	0.41 million
Est. unit penetration/HHLD	3	3
System kW/unit	0.0126 kW	0.0126 kW
Estimated kW potential	10,395 kW	15,592.5 kW

Currently, the target kW potential for the residential compact fluorescent bulb program is over 90,000 kW. By estimating the difference between the target potential and the estimated current potential, the degree to which a program meets its targets can be analyzed. In addition, the rate at which a program reaches its potential can be measured since RAS is conducted biennially. It should be noted that this is only one of several possible scenarios. For example, the percentage of households who report owning a compact fluorescent could be discounted to account for consumers who think they own a compact fluorescent.

As expected, households with higher incomes are more likely to have insulation or energy saving devices. While basement insulation is found in only 29% of household with incomes below \$20,000/year, its incidence rises 33% for households with incomes of \$80,000/year and over. The compact fluorescent light bulb is one of the few items not influenced by income.

Table 9
Energy Saving Measures Taken
By Household Income

Item	Under \$20,000 (%)	\$20,000 - 39,999 (%)	\$40,000 - 59,999 (%)	\$60,000 - 79,999 (%)	\$80,000 And Over (%)
Attic insulation	79	84	88	90	90
Wall insulation	60	67	72	75	75
Basement insulation	29	43	54	60	62
Double/triple glazed windows	45	56	59	65	71
High efficiency shower head	15	22	28	31	29
Compact fluorescent bulb(s)	9	10	10	10	10
Thermostat that lowers temperature	7	9	15	21	28

The need for energy saving items varies slightly among income brackets. The greatest difference occurs for compact fluorescent bulbs (9% for low income, 20% for higher income groups).

Table 10
Home Improvements Needed
By Household Income

Feel House Needs...	Under \$20,000 (%)	\$20,000 - 39,999 (%)	\$40,000 - 59,999 (%)	\$60,000 - 79,999 (%)	\$80,000 And Over (%)
Attic insulation	6	8	9	8	7
Wall insulation	12	13	14	13	13
Basement insulation	11	13	16	15	15
Double/triple glazed windows	12	16	21	17	14
High efficiency shower head	8	13	16	16	15
Compact fluorescent bulb(s)	9	14	19	20	19
Thermostat that lowers temperature	9	14	18	19	17

Senior citizens record lower saturation levels for most energy saving items. With respect to insulation measures, while seniors record the highest incidence of attic insulation, this group has lower saturation rates for basement and wall insulation. The incidence of compact fluorescent light bulbs is equal across age groups.

Table 11
Energy Saving Measures Taken
By Age of Head of Household

Item	Under 35 (%)	35 - 44 (%)	45 - 65 (%)	Over 65 (%)
Attic insulation	77	85	89	88
Wall insulation	69	74	72	60
Basement insulation	48	57	53	33
Double/triple glazed windows	48	60	64	55
High efficiency shower head	28	28	26	15
Compact fluorescent bulb(s)	8	10	10	10
Thermostat that lowers temperature	16	19	14	9

Despite the lower saturation rates for energy saving items, senior citizens are less likely to feel their home needs energy saving measures. The highest ranking items, wall and basement insulation were felt to be necessary by only 7% of the households. Members of households headed by younger individuals show a greater interest in energy saving devices. In the under 35 age group, 31% of the respondents wanted double/triple glazed windows, 27% felt their home

needed a thermostat that lowers the temperature and 25% indicated a need for compact fluorescent lighting.

Table 12
Home Improvements Needed
By Age of Head of Household

Feel House Needs...	Under 35 (%)	35 - 44 (%)	45 - 65 (%)	Over 65 (%)
Attic insulation	13	10	6	3
Wall insulation	20	15	11	7
Basement insulation	23	17	10	7
Double/triple glazed windows	31	22	11	5
High efficiency shower head	24	17	11	4
Compact fluorescent bulb(s)	25	20	13	5
Thermostat that lowers temperature	27	19	12	4

Ontario Hydro's Regions - An Overview

Over 47% of the respondents were from Central Region, 24% were from Western, 15% from Eastern, 6% from Georgian Bay, 6% from Northeastern and 3% were from Northwestern Region. Central Region had the lowest percentage of single family households (71%) while 99% of the respondents in Georgian Bay Region lived in single family dwellings. Table 13 outlines the Municipal/Retail split for respondents, by Region.

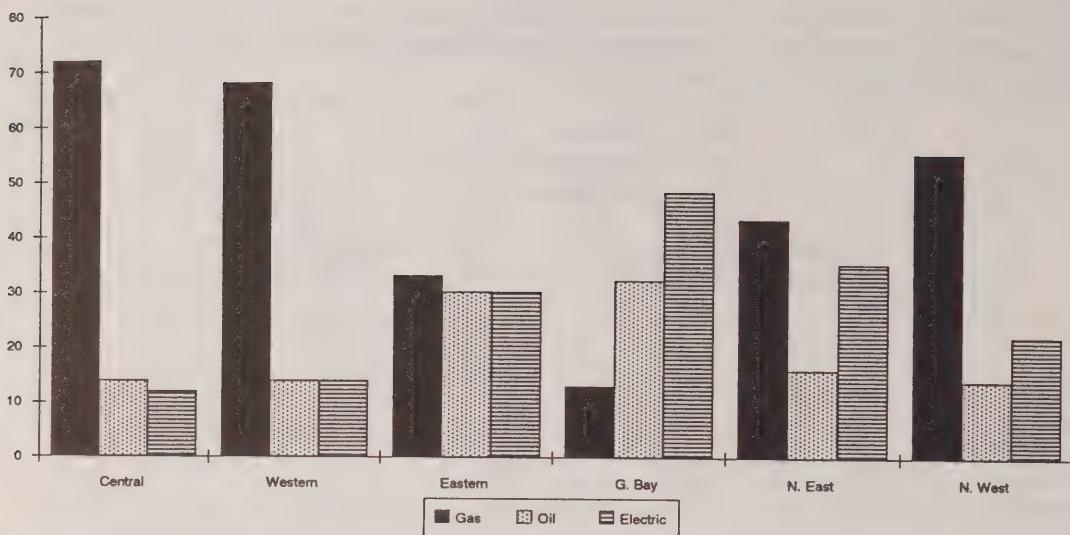
Table 13
Breakdown Of Respondents
By Region

	Municipal		Retail Service		
	Single Metered (%)	Bulk Metered (%)	R1 (%)	R2 (%)	Farm (%)
Central	77	23			
Western	66	10	10	8	7
Eastern	48	10	18	18	6
Georgian Bay			47	38	15
Northeastern	46	3	37	13	1
Northwestern	64	3	16	16	1

In most cases the highest appliance saturation levels were found in Georgian Bay Region, followed by Western Region. Central Region usually recorded the lowest appliance saturation levels. Variations between Regions ranged from less than 1% for colour televisions to 28% for freezers. Western Region had the highest percentage of households using gas appliances; 13% owned gas ranges and 10% had gas dryers. Regional tables can be found in Section II of the report.

Central air conditioning is most common in Central and Western Region. Both Regions had saturation rates around 37 per cent. With respect to space heating systems, saturation rates for natural gas ranged from 65% in Western Region to 13% in Georgian Bay Region. Oil space heating was most common in Georgian Bay Region (32%), followed by Eastern Region (27%). Georgian Bay Region also had the highest percentage of electrically heated homes at 48 per cent. Northeastern Region and Eastern Region also reported saturation rates for electric heating above 30 per cent.

SPACE HEATING SATURATION
BY REGION



Throughout the Regions, electric and natural gas are the most dominant water heating fuels. Natural gas water heating was most common in Central and Western where both Regions had saturation rates above 50 per cent. Georgian Bay Region recorded the highest incidence of electric water heating at 78%, followed by Eastern (55%) and Northeastern Region (53%). Northwestern Region was evenly split between natural gas water heating (41%) and electric water heating (44%).

Older homes can be found in Central and Northwestern Region where saturation levels for homes built before 1961 exceeded 50 per cent. In most cases, between 12 and 13% of the homes had been built since 1983. The two exceptions were Georgian Bay Region where about 25% of the homes have been built since 1983 and Eastern Region (19%). In Northwestern Region, only 4% of the homes have been built since 1988.

Central Region recorded the greatest percentage of respondents earning \$60,000/year or more (26%), followed by Eastern Region (24%). Northeastern Region had the lowest percentage of households earning \$60,000/year or more at 15 per cent. With respect to low income households, 21% of the households in Northeastern Region reporting earnings under \$20,000/year or less. Only 14% of the households in Central and Eastern Region fell into this income bracket.

Northwestern Region had the greatest proportion of respondents under 35 years of age (20%) while only 16% of the respondents in Georgian Bay Region fell into this age group. At the other end of the spectrum, 23% of the respondents in Western Region fell into the over 65 age category. Northeastern Region had the lowest percentage of respondents fall into the over 65 age group (19%).

A more thorough discussion of each of the Regions can be found in the full report (MR 91-61).

Consumption Estimates

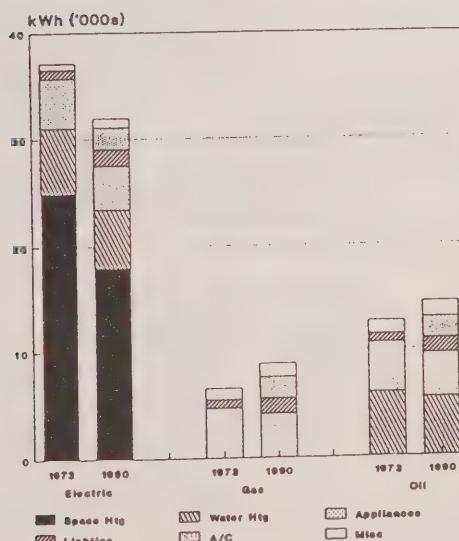
As part of the sample for the Residential Appliance Survey household consumption data is received from each participating utility. This information is also accessed for Retail System customers from the customer master file. Using conditional demand analysis (a regression analysis technique) and secondary information provided by Load Forecasting and Load Research, a kWh consumption figure was derived for major appliances, central air conditioning, electric water heating and electric space heating. We hope this information will assist municipal utilities and Retail System planners in estimating their future electricity requirements.

Table 62 provides average kWh consumption levels for homes with different space heating systems, based on results from the 1986 RAS, the 1988 RAS and the 1990 RAS. Over the last five years it appears as though kWh consumption has been rising. Over the long term consumption levels have been dropping as homes improved their energy saving measures, however, the savings in kWh consumption are being offset by the higher saturation rates for appliances and central air conditioning.

Table 62
Average kWh Consumption
By Main Space Heating Fuel

Main Heating Fuel	1986	1988	1990
Electric	24,301	23,385	25,419
Gas	9,426	9,898	10,222
Oil	12,511	13,255	13,441

Breakdown of Electricity Consumption
By Type of Home Heating System



The Unit Energy Consumption (UEC) Estimates outlined in table 63 were derived after analyzing the results of the regression analysis and reviewing past estimates for various end uses. Conditional demand analysis is not without limitations. For example, the effect of electric water heating on various end-uses, such as dishwashers and washing machines, causes their UEC values to be inflated while the UEC for electric water heating is under estimated. While it is possible to use the end uses as a proxy for electric water heating consumption, this leads to a much larger value for miscellaneous consumption. Clearly, there is no perfect method. Overall, these figures can provide guidance in terms of estimating electricity demand for a household, however, prudent use of the UEC estimates is recommended.

Table 63
Unit Energy Consumption Estimates

End Use	UEC Estimate (kW)
Frost-free refrigerator	1800
Maunal refrigerator	1171
Dishwasher	1400
Stove	1000
Freezer	1307
Washer	739
Dryer	1250
Central air	1616
Elec. water heating	6000
Elec. space heating	14164
Miscellaneous	1829

Dear Customer,

Please help us plan for your future electricity needs by answering the following questions. Upon completion, simply return the form in the enclosed prepaid envelope.

Please do it now while you are thinking about it.

Thank you for your co-operation

Your Hydro

If you have any questions call:

Roger Crawford
1-800-668-8508

Ontario Hydro

700 University Avenue C25 A2
TORONTO M5G 1X6

Si vous désirez recevoir un questionnaire en français, composez le numéro 800 ci-dessus

↓ please detach here ↓

If you live in an apartment building, please complete this form for your own unit only.

125635

9482

H

APPLIANCES

Please "X" the boxes beside the appliances used in your home.

	In use	Number used	Age in years	1st	2nd
frost-free refrigerator	<input type="checkbox"/>	1-12	-15	-22	-44
other refrigerator	<input type="checkbox"/>	2	()	-16	-24 () -48
freezer (stand alone)	<input type="checkbox"/>	3	()	-28	
dishwasher	<input type="checkbox"/>	4	()	-28	
electric range	<input type="checkbox"/>	5	()	-30	
gas range	<input type="checkbox"/>	6	()		
wood-burning range	<input type="checkbox"/>	7	()		
microwave oven	<input type="checkbox"/>	8	()		
washing machine	<input type="checkbox"/>	9	()	-32	
electric clothes dryer	<input type="checkbox"/>	0	()	-34	
gas clothes dryer	<input type="checkbox"/>	1-13	()	-36	
electronic air cleaner	<input type="checkbox"/>	2	()	-17	-38 () -48
window air conditioner	<input type="checkbox"/>	3	()	-38	-40
central air conditioner	<input type="checkbox"/>	4	()	-42	
heat exchanger (heat recovery ventilator)	<input type="checkbox"/>	5	()		
furnace humidifier	<input type="checkbox"/>	6	()		
black and white television	<input type="checkbox"/>	7	()	-18	
colour television	<input type="checkbox"/>	8	()	-19	
video cassette recorder	<input type="checkbox"/>	9	()		
stereophonic system	<input type="checkbox"/>	0	()		
personal computer	<input type="checkbox"/>	1-14	()		
sentinel lights	<input type="checkbox"/>	2	()	-20	
electric car block heater	<input type="checkbox"/>	3	()	-21	
electric swimming pool heater	<input type="checkbox"/>	4	()		
electric water pump (for well)	<input type="checkbox"/>	5	()		

Where requested, write in the number and/or estimated age of the appliances. (If you have more than one of a certain kind, please give the age of the two newest appliances.)

WATER HEATING

What type of fuel is used in your home for water heating?

	Present water heating fuel	Previous water heating fuel
electricity	<input type="checkbox"/>	1-50
natural gas	<input type="checkbox"/>	2
oil	<input type="checkbox"/>	3
propane	<input type="checkbox"/>	4
other	<input type="checkbox"/>	5
don't know	<input type="checkbox"/>	6

If you replaced your water heater in 1988 or after, what fuel did your previous water heater use?

Is your water heater ...

- owned
- rented
- don't know

If you live in an apartment, is there a separate water heater for just your unit?

Yes 1-53
No 2

SIZE AND AGE OF YOUR WATER HEATER

less than 20 gallons	<input type="checkbox"/>	1-54	less than 5 years	<input type="checkbox"/> 1-55
30-45 gallons	<input type="checkbox"/>	2	5-10 years	<input type="checkbox"/> 2
46-69 gallons	<input type="checkbox"/>	3	11-15 years	<input type="checkbox"/> 3
70 gallons or more	<input type="checkbox"/>	4	16 years or more	<input type="checkbox"/> 4
don't know	<input type="checkbox"/>	5	don't know	<input type="checkbox"/> 5

HOME HEATING

Please "X" the boxes beside the type of heating equipment used in your home.

natural gas forced air furnace	<input type="checkbox"/>	1-56
natural gas hot water furnace (radiators)	<input type="checkbox"/>	2
natural gas space heat	<input type="checkbox"/>	3
oil forced air furnace	<input type="checkbox"/>	4
oil hot water furnace (radiators)	<input type="checkbox"/>	5
oil space heater	<input type="checkbox"/>	6
electric forced air furnace	<input type="checkbox"/>	7
electric hot water furnace (radiators)	<input type="checkbox"/>	8
electric built-in heaters (baseboards)	<input type="checkbox"/>	9
electric ceiling cable	<input type="checkbox"/>	0
electric heat pump (air to air)	<input type="checkbox"/>	1-57
electric heat pump (ground source)	<input type="checkbox"/>	2
electric plenum heater	<input type="checkbox"/>	3
plug-in electric heater	<input type="checkbox"/>	4
wood furnace	<input type="checkbox"/>	5
slow burning wood stove (air tight)	<input type="checkbox"/>	6
conventional wood stove	<input type="checkbox"/>	7
fireplace	<input type="checkbox"/>	8
propane furnace	<input type="checkbox"/>	9
kerosene heater	<input type="checkbox"/>	0
solar collectors	<input type="checkbox"/>	1-58

other (WRITE IN) _____

Did you change from oil heating in 1989 or 1990?

Yes 1-59
No 2

If you have a gas or oil furnace, is it a "high efficiency" condensing furnace? (e.g. PULSE, T.H.E., MEGASAVE, ULTRAMAX, etc.)

yes 1-60
no 2
don't know 3

Is natural gas available on your street?

yes 1-61
no 2
don't know 3

NOTE: PLEASE COMPLETE THE OTHER SIDE OF THIS FORM →

HARACTERISTICS OF YOUR HOME

Type of home you live in:

- | | | |
|-----------------------------------|----------------------------|-----|
| single family detached | <input type="checkbox"/> 1 | -62 |
| single family semi-detached | <input type="checkbox"/> 2 | |
| townhouse or row house | <input type="checkbox"/> 3 | |
| duplex, triplex, fourplex | <input type="checkbox"/> 4 | |
| apartment (5 or more units) | <input type="checkbox"/> 5 | |
| mobile home | <input type="checkbox"/> 6 | |

other (WRITE IN) _____

Are you a ...

- | | | |
|------------------|----------------------------|-----|
| home owner | <input type="checkbox"/> 1 | -63 |
| tenant | <input type="checkbox"/> 2 | |

Is your home a condominium?

- | | | |
|-----------|----------------------------|-----|
| yes | <input type="checkbox"/> 1 | -64 |
| no | <input type="checkbox"/> 2 | |

If you are a tenant or own a condominium, how do you pay for heat and hot water in your home?

- | | <u>Heat</u> | <u>Hot water</u> |
|---|----------------------------|--------------------------------|
| included in rent or maintenance fee | <input type="checkbox"/> 1 | -65 |
| pay utility directly | <input type="checkbox"/> 2 | <input type="checkbox"/> 1 -66 |

When was your home built?

- | | | |
|-------------------|----------------------------|-----|
| before 1961 | <input type="checkbox"/> 1 | -67 |
| 1961 - 1970 | <input type="checkbox"/> 2 | |
| 1971 - 1982 | <input type="checkbox"/> 3 | |
| 1983 - 1987 | <input type="checkbox"/> 4 | |
| 1988 | <input type="checkbox"/> 5 | |
| 1989 | <input type="checkbox"/> 6 | |
| 1990 | <input type="checkbox"/> 7 | |

Is your home built to R-2000 energy efficiency standards?

- | | | |
|------------------|----------------------------|-----|
| yes | <input type="checkbox"/> 1 | -68 |
| no | <input type="checkbox"/> 2 | |
| don't know | <input type="checkbox"/> 3 | |

Number of rooms in your home (excluding bathrooms, halls and unfinished rooms)

69 70

Approximate square footage of your home.

- | | | |
|----------------------------|----------------------------|-----|
| under 1,000 sq. ft. | <input type="checkbox"/> 1 | -71 |
| 1,000 - 1,499 sq. ft. | <input type="checkbox"/> 2 | |
| 1,500 - 1,999 sq. ft. | <input type="checkbox"/> 3 | |
| 2,000 - 2,499 sq. ft. | <input type="checkbox"/> 4 | |
| 2,500 - 2,999 sq. ft. | <input type="checkbox"/> 5 | |
| 3,000 or more sq. ft. | <input type="checkbox"/> 6 | |

79-0
80-1

ENERGY CONSERVATION

Which of the following energy saving measures:

- | | <u>Do you have?</u> | <u>Do you feel your house needs?</u> |
|---|--------------------------------|--------------------------------------|
| insulation in attic | <input type="checkbox"/> 1 -12 | <input type="checkbox"/> 1 -14 |
| insulation in walls | <input type="checkbox"/> 2 | <input type="checkbox"/> 2 |
| insulation in floors | <input type="checkbox"/> 3 | <input type="checkbox"/> 3 |
| insulation in basement | <input type="checkbox"/> 4 | <input type="checkbox"/> 4 |
| insulated door(s) | <input type="checkbox"/> 5 | <input type="checkbox"/> 5 |
| double/triple glazed windows | <input type="checkbox"/> 6 | <input type="checkbox"/> 6 |
| high efficiency furnace | <input type="checkbox"/> 7 | <input type="checkbox"/> 7 |
| high efficiency cooling unit | <input type="checkbox"/> 8 | <input type="checkbox"/> 8 |
| heat pump | <input type="checkbox"/> 9 | <input type="checkbox"/> 9 |
| high efficiency appliance(s) | <input type="checkbox"/> 0 | <input type="checkbox"/> 0 |
| heat exchanger | <input type="checkbox"/> 1 -13 | <input type="checkbox"/> 1 -15 |
| water heater blanket | <input type="checkbox"/> 2 | <input type="checkbox"/> 2 |
| high efficiency shower head | <input type="checkbox"/> 3 | <input type="checkbox"/> 3 |
| compact fluorescent light bulb(s) | <input type="checkbox"/> 4 | <input type="checkbox"/> 4 |
| timer for lights | <input type="checkbox"/> 5 | <input type="checkbox"/> 5 |
| thermostat that lowers temperature at night automatically | <input type="checkbox"/> 6 | <input type="checkbox"/> 6 |
| solar energy system | <input type="checkbox"/> 7 | <input type="checkbox"/> 7 |
| none of the above | <input type="checkbox"/> 8 | <input type="checkbox"/> 8 |

What is your age group?

- | | |
|----------------------|--------------------------------|
| under 35 years | <input type="checkbox"/> 1 -16 |
| 35 - 44 years | <input type="checkbox"/> 2 |
| 45 - 65 years | <input type="checkbox"/> 3 |
| over 65 years | <input type="checkbox"/> 4 |

How many people live in your household?

17 18

Please indicate the combined 1989 pretax income from all sources for all members of your household. Your reply is CONFIDENTIAL and will help us assess the impact of income on appliance ownership and electricity usage.

- | | |
|---------------------------|--------------------------------|
| under \$20,000 | <input type="checkbox"/> 1 -19 |
| \$20,000 - \$39,999 | <input type="checkbox"/> 2 |
| \$40,000 - \$59,999 | <input type="checkbox"/> 3 |
| \$60,000 - \$79,999 | <input type="checkbox"/> 4 |
| \$80,000 or over | <input type="checkbox"/> 5 |

79-0
80-2

Thank you for your help.

SECTION II - PROVINCIAL SATURATION STATISTICS

APPLIANCE SATURATION BY REGION

Number of Households Represented, Nov. 1990	Central	Western	Eastern	Georgian Bay	Northeastern	Northwestern	TOTAL
	%	%	%	%	%	%	%
Electric Range	93.7	89.2	96.7	96.5	97.4	96.8	93.5
Gas Range	8.0	12.9	3.3	4.0	2.8	3.4	7.8
Microwave Oven	67.0	78.6	74.3	80.5	78.9	78.8	72.6
Frost-Free Refrigerator	81.8	88.0	84.9	89.5	83.9	85.7	84.4
Freezer (Stand Alone)	51.0	68.4	64.9	78.8	69.9	71.1	60.5
Other Refrigerator	36.1	36.5	37.3	37.3	41.5	37.6	36.8
Dishwasher	43.4	47.0	51.5	54.2	45.2	44.0	46.2
Clothes Washer	71.4	85.1	82.8	93.0	86.8	88.8	79.0
Electric Clothes Dryer	61.0	72.0	77.3	86.8	80.6	80.4	69.2
Gas Clothes Dryer	5.2	9.6	1.5	2.0	1.5	2.3	5.2
Colour Television	98.6	98.9	98.5	99.0	99.3	98.5	98.7
Black & White T.V.	12.7	17.9	17.3	16.4	16.7	15.4	15.1
VCR	66.7	64.0	67.7	70.2	68.6	70.1	66.7
Stereo/Hifi System	67.0	65.2	68.7	68.2	62.1	61.1	66.4
Personal Computer	23.6	19.8	24.5	19.4	17.3	16.0	22.0
Sentinel Lights	5.9	9.5	11.3	13.4	8.4	10.3	8.2
Electronic Air Cleaner	17.2	17.0	12.4	10.8	7.4	10.1	15.3
Window Air Conditioner	25.0	26.1	20.0	14.4	10.9	7.3	22.6
Central Air Conditioner	37.9	37.3	26.4	18.6	4.5	7.1	32.1
Furnace Humidifier	31.6	31.5	22.1	16.9	15.8	18.8	28.0
Electric Water Heater	26.2	33.2	55.0	78.5	52.7	44.3	37.3
Gas Water Heater	53.4	53.5	28.3	9.5	31.8	41.0	45.4
Switched Water Heater							4.3
Fuel Electric to Gas	4.1	4.5	3.9	1.4	7.1	7.7	
Electric Space Heating	15.1	17.3	32.1	47.5	36.6	25.2	21.6
Gas Space Heating	63.7	64.7	33.9	12.8	41.3	52.9	54.8
Oil Space Heating	11.2	12.2	26.6	32.2	15.3	13.5	15.3
Wood Furnace	0.3	1.3	4.4	6.7	4.6	8.3	2.0
Heat Pump	2.6	3.2	5.1	6.5	0.6	0.4	3.2
High Efficiency (Gas/Oil)	15.0	18.8	13.3	18.4	23.3	19.4	16.4
Natural Gas Availability	77.4	77.7	53.7	22.8	66.9	63.2	69.7

APPLIANCE SATURATION BY AGE OF HOME

ONTARIO

Number of Households Represented, Nov 1990	PRE 1961	1961-1970	1971-1982	1983 - 1987	1988 - 1990	TOTAL
	%	%	%	%	%	%
Electric Range	90.6	95.2	96.9	97.4	96.7	93.5
Gas Range	8.0	12.9	3.3	4.0	2.6	7.8
Microwave Oven	65.6	73.4	80.6	84.6	85.1	72.6
Frost-Free Refrigerator	79.7	82.1	90.0	95.2	95.6	84.4
Freezer (Stand Alone)	56.5	62.5	66.9	65.3	59.5	60.5
Other Refrigerator	40.3	42.0	33.8	25.1	20.3	36.8
Dishwasher	35.3	45.6	57.5	69.7	67.7	46.2
Clothes Washer	73.5	75.9	85.0	92.6	83.8	79.0
Electric Clothes Dryer	60.8	65.5	78.8	88.6	89.3	69.2
Gas Clothes Dryer	6.3	6.3	3.5	2.8	2.8	5.2
Colour Television	98.2	98.9	99.4	99.5	99.5	98.7
Black & White T.V.	14.7	14.8	17.1	13.8	15.2	15.1
VCR	58.8	68.3	85.1	80.2	79.9	66.7
Stereo/Hifi System	60.6	67.5	73.4	75.3	76.4	66.4
Personal Computer	17.7	21.7	27.5	29.8	28.8	22.0
Sentinel Lights	7.4	8.1	8.5	10.8	10.6	8.2
Electronic Air Cleaner	11.5	17.2	18.4	23.2	20.4	15.3
Window Air Conditioner	28.0	22.7	18.5	10.4	8.6	22.6
Central Air Conditioner	21.9	34.9	40.7	54.0	49.4	32.1
Furnace Humidifier	31.6	31.5	22.1	16.9	15.8	28.0
Electric Water Heater	38.1	34.0	37.6	36.0	40.3	37.3
Gas Water Heater	41.9	49.2	48.0	52.1	45.9	45.4
Switched Water Heater						
Fuel Electric to Gas	4.1	4.5	3.9	1.4	7.1	4.3
Electric Space Heating	15.1	17.3	32.1	47.5	36.8	21.6
Gas Space Heating	63.7	64.7	33.9	12.8	41.3	54.8
Oil Space Heating	11.2	12.2	26.6	32.2	15.3	15.3
Wood Furnace	0.3	1.3	4.4	6.7	4.6	2.0
Heat Pump	2.3	2.4	3.9	5.8	6.5	3.2
High Efficiency (Gas/Oil)	15.0	18.8	13.3	18.4	23.3	16.4
Natural Gas Availability	77.4	77.7	53.7	22.8	66.9	69.7

APPLIANCE SATURATION BY RATE CLASS

ONTARIO

	Rural Residential		Municipal			TOTAL
	High Density R1	Low Density R2	Farm	Single Metered	Bulk Metered	
Number of Households Represented, Nov 1990	308,310	236,210	105,299	1,871,051	441,250	2,962,120
	%	%	%	%	%	%
Electric Range	95.1	93.7	91.6	92.3	98.0	93.5
Gas Range	5.5	6.7	9.4	9.6	2.0	7.8
Microwave Oven	82.6	80.5	78.1	73.9	54.9	72.6
Frost-Free Refrigerator	89.5	88.6	87.7	88.6	60.0	84.4
Freezer (Stand Alone)	74.7	81.3	85.1	61.2	30.7	60.5
Other Refrigerator	37.5	38.6	41.1	34.4	44.3	36.8
Dishwasher	54.2	50.2	51.0	50.2	20.2	46.2
Clothes Washer	92.8	93.6	94.4	87.6	21.3	79.0
Electric Clothes Dryer	86.5	86.0	84.7	75.3	18.8	69.2
Gas Clothes Dryer	3.3	3.3	3.5	6.9	1.1	5.2
Colour Television	99.3	98.7	98.4	99.0	97.4	98.7
Black & White T.V.	16.7	19.0	20.6	15.4	9.7	15.1
VCR	72.0	69.0	58.2	69.2	53.1	66.7
Stereo/Hifi System	67.5	67.3	56.6	68.4	59.4	66.4
Personal Computer	20.3	19.6	20.0	25.1	11.8	22.0
Sentinel Lights	10.0	15.6	25.0	7.6	1.6	8.2
Electronic Air Cleaner	12.1	10.1	8.4	19.4	4.5	15.3
Window Air Conditioner	16.6	15.7	17.2	21.6	36.1	22.6
Central Air Conditioner	23.9	16.8	13.9	41.2	12.2	32.1
Furnace Humidifier	20.7	14.3	18.5	38.1	0.2	26.0
Electric Water Heater	59.2	80.2	77.7	30.6	17.6	37.3
Gas Water Heater	29.0	5.9	7.3	53.6	52.4	45.4
Switched Water Heater						4.3
Fuel Electric to Gas	4.5	1.0	0.9	5.6	0.9	
Electric Space Heating	38.4	48.1	19.5	13.7	29.9	21.6
Gas Space Heating	37.4	8.3	11.1	67.5	48.8	54.8
Oil Space Heating	19.7	32.1	53.9	13.2	3.0	15.3
Wood Furnace	2.8	10.3	15.1	0.5	0.0	2.0
Heat Pump	4.5	6.9	4.5	3.1	0.6	3.2
High Efficiency (Gas/Oil)	22.3	14.7	14.1	18.0	2.7	16.4
Natural Gas Availability	54.7	18.4	20.8	83.6	60.3	69.7

APPLIANCE SATURATION BY RATE CLASS

ONTARIO

	Single Family Dwelling	Apartment	TOTAL
Number of Households Represented, Nov 1990	2,396,730	565,381	2,962,120
	%	%	%
Electric Range	92.3	98.6	93.5
Gas Range	9.3	1.5	7.8
Microwave Oven	76.8	55.0	72.6
Frost-Free Refrigerator	90.1	80.3	84.4
Freezer (Stand Alone)	67.8	29.5	60.5
Other Refrigerator	35.2	43.8	36.8
Dishwasher	52.4	20.1	46.2
Clothes Washer	92.8	20.5	79.0
Electric Clothes Dryer	81.2	18.5	69.2
Gas Clothes Dryer	6.3	0.6	5.2
Colour Television	99.1	97.2	98.7
Black & White T.V.	16.4	9.8	15.1
VCR	69.9	52.9	66.7
Stereo/HIFI System	68.1	59.3	66.4
Personal Computer	24.4	12.0	22.0
Sentinel Lights	9.8	1.8	8.2
Electronic Air Cleaner	17.9	4.5	15.3
Window Air Conditioner	19.5	35.9	22.6
Central Air Conditioner	36.9	12.2	32.1
Furnace Humidifier	34.6	0.3	28.0
Electric Water Heater	41.6	18.9	37.3
Gas Water Heater	46.4	41.2	45.4
Switched Water Heater			
Fuel Electric to Gas	5.1	0.7	4.3
Electric Space Heating	19.6	30.1	21.6
Gas Space Heating	58.0	41.3	54.8
Oil Space Heating	17.9	4.1	15.3
Wood Furnace	2.5	0.0	2.0
Heat Pump	3.7	0.8	3.2
High Efficiency (Gas/Oil)	18.3	2.7	16.4
Natural Gas Availability	73.7	52.7	69.7

APPLIANCE SATURATION BY REGION
FOR SINGLE FAMILY DWELLINGS

Number of Households Represented, Nov. 1990	Central	Western	Eastern	Georgian Bay	Northeastern	Northwestern	TOTAL
	%	%	%	%	%	%	%
Electric Range	91.7	87.9	96.4	96.5	97.2	98.6	92.3
Gas Range	10.6	14.4	3.7	4.0	2.9	3.5	9.3
Microwave Oven	72.2	80.8	78.4	80.6	80.1	80.6	76.8
Frost-Free Refrigerator	90.5	91.4	89.4	89.6	86.3	87.9	90.1
Freezer (Stand Alone)	59.9	73.1	71.7	79.2	72.3	73.6	67.8
Other Refrigerator	33.0	36.0	35.9	37.4	40.7	36.5	35.2
Dishwasher	52.7	50.8	56.1	54.3	47.9	46.6	52.4
Clothes Washer	91.6	94.1	93.7	93.4	92.0	93.3	92.8
Electric Clothes Dryer	77.8	79.6	87.5	87.1	85.6	84.7	81.2
Gas Clothes Dryer	7.2	10.7	1.7	2.0	1.6	2.2	6.3
Colour Television	99.1	99.1	98.9	99.0	99.3	98.6	99.1
Black & White T.V.	13.8	19.0	18.5	16.5	17.4	16.0	16.4
VCR	71.6	66.3	70.9	70.4	69.9	71.0	69.9
Stereo/Hifi System	69.5	66.6	70.3	68.3	62.8	62.4	68.1
Personal Computer	27.9	21.3	26.5	19.6	18.1	16.8	24.4
Sentinel Lights	7.6	10.5	12.7	13.5	9.0	11.0	9.8
Electronic Air Cleaner	22.2	18.8	13.9	10.8	7.7	10.5	17.9
Window Air Conditioner	20.5	23.6	18.2	14.5	10.9	7.7	19.5
Central Air Conditioner	47.6	41.5	28.8	18.5	4.7	7.5	36.9
Furnace Humidifier	44.1	35.7	25.9	17.0	17.0	20.2	34.6
Electric Water Heater	30.9	34.1	58.9	78.6	53.8	45.0	41.6
Gas Water Heater	57.2	55.5	27.0	9.5	33.0	42.3	46.4
Switched Water Heater							5.1
Fuel Electric to Gas	5.4	5.1	4.5	1.4	7.6	8.2	
Electric Space Heating	11.5	13.9	30.4	47.5	35.2	22.3	19.6
Gas Space Heating	71.7	68.4	33.4	12.7	42.9	55.1	58.0
Oil Space Heating	13.8	13.6	30.4	32.4	16.5	14.5	17.9
Wood Furnace	0.4	1.5	5.2	6.7	5.0	8.9	2.5
Heat Pump	3.3	3.5	5.8	6.5	0.6	0.4	3.7
High Efficiency (Gas/Oil)	17.7	19.9	14.5	18.5	24.2	19.8	18.3
Natural Gas Availability	87.1	80.9	54.1	22.6	58.9	64.5	73.7

**APPLIANCE SATURATION BY REGION
FOR APARTMENTS**

Number of Households Represented, Nov. 1990	Central	Western	Eastern	Georgian Bay	Northeastern	Northwestern	TOTAL
	%	%	%	%	%	%	%
Electric Range	98.7	98.3	98.4	100.0	99.2	98.3	98.6
Gas Range	1.4	1.9	1.3	0.0	0.8	2.2	1.5
Microwave Oven	54.0	61.9	50.3	66.7	64.9	55.5	55.0
Frost-Free Refrigerator	60.0	63.3	58.9	83.6	55.1	56.7	60.3
Freezer (Stand Alone)	28.7	33.7	25.8	28.2	40.9	37.7	29.5
Other Refrigerator	43.9	40.4	45.4	28.4	51.1	51.8	43.8
Dishwasher	20.0	18.6	24.8	42.2	13.5	9.1	20.1
Clothes Washer	20.8	18.2	20.3	47.8	24.1	29.3	20.5
Electric Clothes Dryer	18.8	15.7	18.9	43.7	20.3	22.5	18.5
Gas Clothes Dryer	0.4	1.2	0.6	0.0	0.0	3.3	0.6
Colour Television	97.2	97.5	96.6	98.5	98.7	96.8	97.2
Black & White T.V.	9.8	10.0	10.1	7.2	8.1	8.4	9.8
VCR	54.5	47.3	49.4	47.1	54.0	58.6	52.9
Stereo/Hifi System	60.6	54.6	59.5	49.3	54.1	43.1	59.3
Personal Computer	12.8	8.5	13.1	0.0	6.9	5.2	12.0
Sentinel Lights	1.6	1.9	3.0	0.0	1.6	2.2	1.8
Electronic Air Cleaner	4.8	3.1	4.1	10.5	3.8	5.1	4.5
Window Air Conditioner	36.4	44.8	30.1	9.8	11.6	2.3	35.9
Central Air Conditioner	13.7	6.3	12.8	30.3	2.8	1.1	12.2
Furnace Humidifier	0.2	0.6	0.1	5.9	0.9	0.0	0.3
Electric Water Heater	14.1	26.3	32.4	61.7	39.4	34.5	18.9
Gas Water Heater	43.8	39.1	35.5	8.8	17.9	23.9	41.2
Switched Water Heater							0.7
Fuel Electric to Gas	0.6	0.4	0.7	2.9	1.2	1.7	
Electric Space Heating	24.2	42.7	42.1	52.0	53.9	62.7	30.1
Gas Space Heating	43.7	37.5	36.7	28.5	22.9	23.3	41.3
Oil Space Heating	4.6	2.0	4.8	1.5	1.6	0.5	4.1
Wood Furnace	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Heat Pump	0.8	0.7	1.3	15.5	0.14	0.0	0.8
High Efficiency (Gas/Oil)	2.9	2.3	2.4	0.0	0.0	0.0	2.7
Natural Gas Availability	53.0	54.7	51.5	38.0	43.7	45.5	52.7

APPLIANCE SATURATION BY REGION
FOR MUNICIPAL SINGLE METERED RESPONDENTS

Number of Households Represented, Nov. 1990	Central	Western	Eastern	Northeastern	Northwestern	TOTAL
	%	%	%	%	%	%
Electric Range	92.4	88.2	97.7	97.2	98.4	92.3
Gas Range	9.7	14.3	2.6	3.1	1.7	9.6
Microwave Oven	70.9	79.6	73.8	78.1	78.7	73.9
Frost-Free Refrigerator	88.1	90.7	88.0	86.3	87.2	88.6
Freezer (Stand Alone)	57.4	68.4	60.2	68.5	69.1	61.2
Other Refrigerator	33.8	35.1	33.5	39.6	37.8	34.4
Dishwasher	50.0	48.9	56.2	47.8	45.4	50.2
Clothes Washer	86.0	91.6	86.6	87.5	90.4	87.6
Electric Clothes Dryer	73.1	76.4	80.6	79.5	82.0	75.3
Gas Clothes Dryer	6.5	11.4	1.7	2.0	2.1	6.9
Colour Television	98.9	99.0	99.0	99.5	98.5	99.0
Black & White T.V.	13.6	18.6	16.4	16.9	17.2	15.4
VCR	70.3	66.2	70.1	67.2	70.3	69.2
Stereo/Hifi System	68.9	66.9	72.7	62.9	60.7	68.4
Personal Computer	26.9	20.8	29.6	19.6	14.7	25.1
Sentinel Lights	7.2	7.5	9.4	8.4	9.6	7.6
Electronic Air Cleaner	21.0	19.7	16.7	8.4	12.4	19.4
Window Air Conditioner	21.9	25.2	19.2	12.1	6.2	21.6
Central Air Conditioner	45.1	44.0	35.6	6.0	8.7	41.2
Furnace Humidifier	41.1	38.5	32.3	18.6	24.7	38.1
Electric Water Heater	29.7	24.3	42.8	48.1	29.0	30.6
Gas Water Heater	53.2	64.4	38.5	35.8	57.6	53.6
Switched Water Heater						5.6
Fuel Electric to Gas	5.0	5.8	6.7	7.2	10.7	
Electric Space Heating	12.1	11.1	20.0	34.3	14.2	13.7
Gas Space Heating	67.7	78.6	48.5	47.8	73.7	67.5
Oil Space Heating	13.5	7.1	26.1	13.3	7.4	13.2
Wood Furnace	0.4	0.4	0.7	1.5	3.2	0.5
Heat Pump	3.2	2.4	5.0	0.7	0.2	3.1
High Efficiency (Gas/Oil)	17.4	19.7	14.5	23.4	20.8	18.0
Natural Gas Availability	82.5	90.6	76.3	77.0	82.5	83.6

APPLIANCE SATURATION BY REGION
FOR MUNICIPAL BULK METERED RESPONDENTS

Number of Households Represented, Nov. 1990	Central	Western	Eastern	Northeastern	Northwestern	TOTAL
	%	%	%	%	%	%
Electric Range	98.0	98.2	97.9	98.9	100.0	98.0
Gas Range	2.2	1.8	1.6	1.1	0.0	2.0
Microwave Oven	54.0	62.3	48.4	65.9	64.7	54.9
Frost-Free Refrigerator	60.8	60.9	54.5	41.6	52.9	60.0
Freezer (Stand Alone)	30.0	35.0	26.9	43.8	50.0	30.7
Other Refrigerator	43.7	42.6	48.4	63.3	64.7	44.3
Dishwasher	21.4	15.2	21.7	7.6	11.8	20.2
Clothes Washer	23.1	17.5	15.6	4.3	26.5	21.3
Electric Clothes Dryer	20.6	14.7	14.1	2.2	17.6	18.8
Gas Clothes Dryer	1.0	1.5	1.0	0.0	8.8	1.1
Colour Television	97.4	97.9	96.0	100.0	97.1	97.4
Black & White T.V.	9.5	9.7	11.3	4.9	2.9	9.7
VCR	54.9	46.9	48.1	60.6	58.8	53.1
Stereo/Hifi System	60.4	54.7	59.6	55.7	44.1	59.4
Personal Computer	12.5	8.6	12.9	1.1	14.7	11.8
Sentinel Lights	1.5	1.7	2.4	1.1	5.9	1.6
Electronic Air Cleaner	4.8	3.3	3.7	3.8	8.8	4.5
Window Air Conditioner	35.3	44.9	32.7	11.4	2.9	36.1
Central Air Conditioner	14.1	3.8	12.9	2.2	2.9	12.2
Furnace Humidifier	0.2	0.1	0.0	0.0	2.9	0.2
Electric Water Heater	14.3	23.4	28.7	45.4	23.5	17.6
Gas Water Heater	54.0	48.2	50.0	31.9	35.3	52.4
Switched Water Heater						
Fuel Electric to Gas	0.9	0.7	0.8	0.0	0.0	0.9
Electric Space Heating	25.2	40.5	42.9	62.7	64.7	29.9
Gas Space Heating	50.6	43.3	47.2	27.0	23.5	48.8
Oil Space Heating	3.6	1.4	0.8	2.7	0.0	3.0
Wood Furnace	0.0	0.0	0.0	0.0	0.0	0.0
Heat Pump	0.6	0.1	0.8	2.2	0.0	0.6
High Efficiency (Gas/Oil)	2.8	2.4	2.0	0.0	0.0	2.7
Natural Gas Availability	60.4	59.8	61.3	53.5	50.0	60.3

APPLIANCE SATURATION BY REGION
FOR R1 CLASS RURAL RETAIL RESPONDENTS

Number of Households Represented, Nov. 1990	Western R1	Eastern R1	Georgian Bay R1	Northeastern R1	Northwestern R1	TOTAL R1
	%	%	%	%	%	%
Electric Range	87.7	96.6	97.2	98.5	94.9	95.1
Gas Range	14.0	3.3	3.6	1.5	5.4	5.5
Microwave Oven	83.8	84.1	81.5	81.1	80.6	82.6
Frost-Free Refrigerator	92.3	90.2	90.8	84.6	85.8	89.5
Freezer (Stand Alone)	76.6	76.8	75.4	69.2	74.2	74.7
Other Refrigerator	38.5	36.8	34.8	41.3	35.1	37.5
Dishwasher	56.9	58.6	54.9	46.7	45.6	54.2
Clothes Washer	94.0	94.9	91.6	90.6	92.5	92.8
Electric Clothes Dryer	81.9	90.9	86.4	86.6	84.2	86.5
Gas Clothes Dryer	9.5	1.3	1.8	1.0	2.2	3.3
Colour Television	99.3	99.1	99.4	99.4	99.3	99.3
Black & White T.V.	18.3	17.8	14.8	16.8	11.7	16.7
VCR	69.4	73.7	72.1	71.6	76.1	72.0
Stereo/Hifi System	67.8	70.2	69.8	61.6	63.2	67.5
Personal Computer	22.1	24.1	18.4	16.9	18.3	20.3
Sentinel Lights	11.9	11.9	9.4	5.9	8.0	10.0
Electronic Air Cleaner	18.3	11.9	11.7	7.5	6.1	12.1
Window Air Conditioner	21.7	18.7	16.3	10.6	8.2	16.6
Central Air Conditioner	45.4	26.9	21.7	3.7	4.5	23.9
Furnace Humidifier	30.3	21.2	17.5	15.8	10.7	20.7
Electric Water Heater	46.1	63.7	72.5	49.3	66.9	59.2
Gas Water Heater	43.0	24.4	16.8	37.3	18.1	29.0
Switched Water Heater						4.5
Fuel Electric to Gas	3.9	2.9	2.7	9.4	4.6	
Electric Space Heating	24.5	38.4	52.3	34.5	41.7	38.4
Gas Space Heating	57.0	29.0	21.9	48.3	27.9	37.4
Oil Space Heating	14.6	28.3	20.8	13.2	21.5	19.7
Wood Furnace	0.8	3.5	2.3	3.3	9.3	2.8
Heat Pump	5.7	6.4	5.6	0.3	0.4	4.5
High Efficiency (Gas/Oil)	24.0	16.4	23.2	26.5	19.5	22.3
Natural Gas Availability	73.1	45.1	34.2	75.8	40.6	54.7

APPLIANCE SATURATION BY REGION
FOR R2 CLASS RURAL RETAIL RESPONDENTS

Number of Households Represented, Nov. 1990	Western R2	Eastern R2	Georgian Bay R2	Northeastern R2	Northwestern R2	TOTAL R2
	%	%	%	%	%	%
Electric Range	88.6	95.1	96.0	94.7	91.7	93.7
Gas Range	12.9	4.7	4.1	5.5	8.8	6.7
Microwave Oven	82.7	79.0	50.9	79.4	80.2	80.5
Frost-Free Refrigerator	91.7	88.1	89.0	83.8	85.3	88.6
Freezer (Stand Alone)	85.0	80.0	80.6	81.2	78.3	81.3
Other Refrigerator	35.8	39.8	38.6	42.6	35.0	38.6
Dishwasher	52.9	49.3	53.6	40.7	42.6	50.2
Clothes Washer	93.6	94.2	94.5	91.5	88.6	93.6
Electric Clothes Dryer	83.4	87.1	86.0	85.0	80.5	86.0
Gas Clothes Dryer	8.4	1.6	2.0	1.5	2.1	3.3
Colour Television	99.3	98.6	98.6	98.1	98.0	98.7
Black & White T.V.	19.3	21.2	17.1	18.4	14.3	19.0
VCR	67.0	68.4	72.1	68.0	66.6	69.0
Stereo/Hifi System	66.8	68.4	70.7	63.2	63.8	67.3
Personal Computer	21.7	18.7	20.7	15.0	19.4	19.6
Sentinel Lights	16.6	16.3	14.7	13.0	15.4	15.6
Electronic Air Cleaner	14.8	8.4	11.0	4.9	5.7	10.1
Window Air Conditioner	20.2	17.2	13.5	8.0	11.3	15.7
Central Air Conditioner	27.7	14.4	18.0	2.6	4.1	16.8
Furnace Humidifier	21.8	10.5	15.7	9.9	6.9	14.3
Electric Water Heater	69.0	84.0	84.8	77.3	83.4	80.2
Gas Water Heater	17.2	1.6	3.3	4.9	1.0	5.9
Switched Water Heater						1.0
Fuel Electric to Gas	2.3	0.4	0.2	2.8	0.7	
Electric Space Heating	32.6	55.9	52.0	46.6	46.3	48.1
Gas Space Heating	23.5	2.7	4.8	5.6	2.3	8.3
Oil Space Heating	32.8	30.3	35.3	27.9	30.3	32.1
Wood Furnace	3.8	12.0	8.2	17.2	27.3	10.3
Heat Pump	8.4	7.1	8.4	0.9	1.4	6.9
High Efficiency (Gas/Oil)	19.9	10.1	14.8	13.5	8.1	14.7
Natural Gas Availability	39.0	11.4	12.6	14.9	14.1	18.4

APPLIANCE SATURATION BY REGION
FOR FARM RESPONDENTS

	Western	Eastern	Georgian Bay	Northeastern	Northwestern	TOTAL
Number of Households Represented, Nov. 1990	49,434	25,434	27,121	2,508	802	105,299
	%	%	%	%	%	%
Electric Range	89.0	91.9	95.6	96.0	91.9	91.6
Gas Range	13.1	7.6	4.9	3.2	6.1	9.4
Microwave Oven	79.6	77.4	76.6	73.0	76.1	78.1
Frost-Free Refrigerator	90.2	84.7	87.0	80.1	81.4	87.7
Freezer (Stand Alone)	85.6	84.9	84.5	83.1	83.9	85.1
Other Refrigerator	39.3	43.3	41.9	49.2	35.0	41.1
Dishwasher	52.1	47.4	53.7	42.3	36.1	51.0
Clothes Washer	95.1	93.8	93.6	94.0	93.5	94.4
Electric Clothes Dryer	84.0	85.8	84.9	84.5	79.5	84.7
Gas Clothes Dryer	5.5	0.9	2.5	1.1	4.1	3.5
Colour Television	98.8	97.5	98.5	98.0	98.9	98.4
Black & White T.V.	21.2	21.3	19.4	16.4	11.8	20.6
VCR	56.2	60.4	59.8	58.7	50.6	58.2
Stereo/Hifi System	58.0	54.3	56.9	51.3	49.3	56.6
Personal Computer	20.5	20.9	19.5	9.3	12.7	20.0
Sentinel Lights	27.4	23.7	22.4	20.5	24.3	25.0
Electronic Air Cleaner	10.8	5.7	7.3	3.4	3.6	8.4
Window Air Conditioner	21.5	16.9	11.1	6.6	6.5	17.2
Central Air Conditioner	19.2	8.8	10.5	2.8	4.1	13.9
Furnace Humidifier	21.3	14.4	17.9	12.6	8.7	18.5
Electric Water Heater	72.5	84.0	81.2	77.6	85.8	77.7
Gas Water Heater	13.6	1.1	2.3	2.6	1.9	7.3
Switched Water Heater						0.9
Fuel Electric to Gas	1.5	0.2	0.5	1.0	0.9	
Electric Space Heating	17.2	21.8	21.5	20.6	22.2	19.5
Gas Space Heating	19.9	1.9	4.9	3.3	3.0	11.1
Oil Space Heating	49.0	58.2	59.4	48.9	41.8	53.9
Wood Furnace	9.2	22.5	16.2	36.8	35.3	15.1
Heat Pump	5.5	3.2	4.7	0.6	0.9	4.5
High Efficiency (Gas/Oil)	15.0	12.2	14.5	9.2	7.2	14.1
Natural Gas Availability	30.6	12.1	12.7	8.5	11.3	20.8

APPLIANCE SATURATION BY kWh CONSUMPTION

ONTARIO

Number of Households Represented, Nov. 1990	Less than 5,000 kWh	5,000 - 14,900 kWh	15,000 - 30,000 kWh	Over 30,000 kWh	TOTAL
	%	%	%	%	%
Electric Range	88.8	91.4	96.1	97.0	92.3
Gas Range	12.3	10.7	5.0	3.7	9.3
Microwave Oven	67.4	75.9	83.9	86.1	76.8
Frost-Free Refrigerator	82.3	90.9	93.7	94.0	90.1
Freezer (Stand Alone)	50.1	68.6	77.0	80.3	67.8
Other Refrigerator	32.9	34.1	36.3	38.9	35.2
Dishwasher	36.2	49.9	64.8	74.8	52.4
Clothes Washer	81.7	94.7	96.3	97.1	92.8
Electric Clothes Dryer	67.1	80.5	90.4	94.9	81.2
Gas Clothes Dryer	6.4	8.1	3.6	1.5	6.3
Colour Television	97.9	99.2	99.4	99.6	99.1
Black & White T.V.	14.4	16.1	18.1	18.3	16.4
VCR	60.3	69.0	77.1	79.5	69.9
Stereo/HiFi System	62.2	67.6	72.3	74.7	68.1
Personal Computer	17.7	23.0	29.8	35.7	24.4
Sentinel Lights	7.6	7.9	13.0	19.8	9.8
Electronic Air Cleaner	10.2	17.6	23.4	22.6	17.9
Window Air Conditioner	18.9	19.8	19.2	18.9	19.5
Central Air Conditioner	23.0	40.7	40.2	34.0	36.9
Furnace Humidifier	24.0	41.4	30.7	22.5	34.6
Electric Water Heater	31.5	30.4	64.7	81.7	41.6
Gas Water Heater	52.9	58.7	23.8	6.6	46.4
Switched Water Heater					
Fuel Electric to Gas	4.7	6.4	3.7	1.6	5.1
Electric Space Heating	18.1	5.0	39.3	73.6	19.6
Gas Space Heating	62.7	72.6	34.1	10.0	58
Oil Space Heating	11.6	18.8	22.6	13.4	17.9
Wood Furnace	1.8	1.9	3.9	3.9	2.5
Heat Pump	2.5	1.2	7.4	14.5	3.7
High Efficiency (Gas/Oil)	16.9	17.5	22.4	24.1	18.3
Natural Gas Availability	72.9	85.1	57.8	39.0	73.7

SECTION III - REGIONAL SATURATION STATISTICS

APPLIANCE SATURATION BY RATE CLASS

CENTRAL REGION

	Municipal Single Metered	Bulk Metered	TOTAL
Number of Households Represented, Nov. 1990	1,069,280	322,704	1,391,984
	%	%	%
Electric Range	92.4	98.0	93.7
Gas Range	9.7	2.2	8.0
Microwave Oven	70.9	54.0	67.0
Frost-Free Refrigerator	88.1	60.8	81.8
Freezer (Stand Alone)	57.4	30.0	51.0
Other Refrigerator	33.8	43.7	36.1
Dishwasher	50.0	21.4	43.4
Clothes Washer	86.0	23.1	71.4
Electric Clothes Dryer	73.1	20.6	61.0
Gas Clothes Dryer	6.5	1.0	5.2
Colour Television	98.9	97.4	98.6
Black & White T.V.	13.6	9.5	12.7
VCR	70.3	54.9	66.7
Stereo/Hifi System	68.9	60.4	67.0
Personal Computer	26.9	12.5	23.6
Sentinel Lights	7.2	1.5	5.9
Electronic Air Cleaner	21.0	4.8	17.2
Window Air Conditioner	21.9	35.3	25.0
Central Air Conditioner	45.1	14.1	37.9
Furnace Humidifier	41.1	0.2	31.6
Electric Water Heater	29.7	14.3	26.2
Gas Water Heater	53.2	54.0	53.4
Switched Water Heater			
Fuel Electric to Gas	5.0	0.9	4.1
Electric Space Heating	12.1	25.2	15.1
Gas Space Heating	67.7	50.6	63.7
Oil Space Heating	13.5	3.6	11.2
Wood Furnace	0.4	0.0	0.3
Heat Pump	3.2	0.6	2.6
High Efficiency (Gas/Oil)	17.4	2.8	15.0
Natural Gas Availability	82.5	60.4	77.4

APPLIANCE SATURATION BY HOUSING TYPE

CENTRAL REGION

	Single Family		
	Dwelling	Apartment	TOTAL
Number of Households Represented, Nov. 1990	994,986	396,999	1,391,984
	%	%	%
Electric Range	91.7	98.7	93.7
Gas Range	10.6	1.4	8.0
Microwave Oven	72.2	54.0	67.0
Frost-Free Refrigerator	90.5	60.0	81.8
Freezer (Stand Alone)	59.9	28.7	51.0
Other Refrigerator	33.0	43.9	36.1
Dishwasher	52.7	20.0	43.4
Clothes Washer	91.6	20.8	71.4
Electric Clothes Dryer	77.8	18.8	61.0
Gas Clothes Dryer	7.2	0.4	5.2
Colour Television	99.1	97.2	98.6
Black & White T.V.	13.8	9.8	12.7
VCR	71.6	54.5	66.7
Stereo/Hifi System	69.5	60.6	67.0
Personal Computer	27.9	12.8	23.6
Sentinel Lights	7.6	1.6	5.9
Electronic Air Cleaner	22.2	4.8	17.2
Window Air Conditioner	20.5	36.4	25.0
Central Air Conditioner	47.6	13.7	37.9
Furnace Humidifier	44.1	0.2	31.6
Electric Water Heater	30.9	14.1	26.2
Gas Water Heater	57.2	43.8	53.4
Switched Water Heater			
Fuel Electric to Gas	5.4	0.6	4.1
Electric Space Heating	11.5	24.2	15.1
Gas Space Heating	67.7	43.7	63.7
Oil Space Heating	13.8	4.6	11.2
Wood Furnace	0.4	0.0	0.3
Heat Pump	3.3	0.8	2.6
High Efficiency (Gas/Oil)	17.7	2.9	15.0
Natural Gas Availability	87.1	53.0	77.4

APPLIANCE SATURATION BY kWh CONSUMPTION

CENTRAL REGION

Number of Households Represented, Nov. 1990	Less than 5,000 kWh	5,000 - 14,999 kWh	15,000 - 30,000 kWh	Over 30,000 kWh
	%	%	%	%
Electric Range	87.9	91.2	96.1	95.7
Gas Range	13.8	11.5	6.0	4.7
Microwave Oven	59.7	71.9	82.0	84.5
Frost-Free Refrigerator	80.2	91.7	95.5	94.4
Freezer (Stand Alone)	36.4	62.4	72.2	69.1
Other Refrigerator	31.3	32.2	36.4	36.9
Dishwasher	31.3	51.6	70.0	81.3
 Clothes Washer	 74.2	 94.7	 97.0	 97.4
Electric Clothes Dryer	57.8	78.5	90.1	96.3
Gas Clothes Dryer	6.7	8.6	4.4	0.8
 Colour Television	 97.6	 99.4	 99.5	 99.5
Black & White T.V.	11.6	13.7	16.0	15.3
VCR	59.3	71.2	81.9	83.9
Stereo/HiFi System	61.7	69.4	75.2	78.6
Personal Computer	19.1	26.5	35.8	49.1
Sentinel Lights	4.8	6.6	10.8	18.2
 Electronic Air Cleaner	 10.0	 21.1	 34.7	 34.1
Window Air Conditioner	22.1	20.1	19.5	23.7
Central Air Conditioner	25.6	50.0	59.6	53.3
Furnace Humidifier	27.4	48.8	46.9	35.2
 Electric Water Heater	 17.5	 25.4	 51.8	 74.0
Gas Water Heater	63.2	64.7	37.0	14.0
Switched Water Heater				
Fuel Electric to Gas	5.4	6.2	3.7	2.0
 Electric Space Heating	 11.2	 2.9	 25.5	 71.8
Gas Space Heating	71.8	80.6	54.6	20.6
Oil Space Heating	7.7	14.7	18.5	7.4
Wood Furnace	0.2	0.4	0.4	0.8
Heat Pump	1.3	1.3	8.5	18.6
High Efficiency (Gas/Oil)	13.2	17.2	23.1	32.5
Natural Gas Availability	80.9	93.8	77.7	60.4

APPLIANCE SATURATION BY RATE CLASS

WESTERN REGION

	Rural Retail Residential			Municipal		
	High Density R1	Low Density R2	Farm	Single Metered	Bulk Metered	TOTAL
Number of Households Represented, Nov. 1990	69,247	53,284	49,434	459,875	67,639	699,480
	%	%	%	%	%	%
Electric Range	87.7	88.6	89.0	88.2	98.2	89.2
Gas Range	14.0	12.9	13.1	14.3	1.8	12.9
Microwave Oven	83.8	82.7	79.6	79.6	62.3	78.6
Frost-Free Refrigerator	92.3	91.7	90.2	90.7	60.9	88.0
Freezer (Stand Alone)	76.6	85.0	85.6	68.4	35.0	68.4
Other Refrigerator	38.5	35.8	39.3	35.1	42.6	36.5
Dishwasher	56.9	52.9	52.1	48.9	15.2	47.0
Clothes Washer	94.0	93.6	95.1	91.6	17.5	85.1
Electric Clothes Dryer	81.9	83.4	84.0	76.4	14.7	72.0
Gas Clothes Dryer	9.5	8.4	5.5	11.4	1.5	9.6
Colour Television	99.3	99.3	98.8	99.0	97.9	98.9
Black & White T.V.	18.3	19.3	21.2	18.6	9.7	17.9
VCR	69.4	67.0	56.2	66.2	46.9	64.0
Stereo/Hifi System	67.8	66.8	58.0	66.9	54.7	65.2
Personal Computer	22.1	21.7	20.5	20.8	8.8	19.8
Sentinel Lights	11.9	16.6	27.4	7.5	1.7	9.5
Electronic Air Cleaner	18.3	14.8	10.8	19.7	3.3	17.0
Window Air Conditioner	21.7	20.2	21.5	25.2	44.9	26.1
Central Air Conditioner	45.4	27.7	19.2	44.0	3.8	37.3
Furnace Humidifier	30.3	21.8	21.3	38.5	0.1	31.5
Electric Water Heater	46.1	69.0	72.5	24.3	23.4	33.2
Gas Water Heater	43.0	17.2	13.6	64.4	48.2	53.5
Switched Water Heater						
Fuel Electric to Gas	3.9	2.3	1.5	5.8	0.7	4.5
Electric Space Heating	24.5	32.6	17.2	11.1	40.5	17.3
Gas Space Heating	57.0	23.5	19.9	78.6	43.3	64.7
Oil Space Heating	14.6	32.8	49.0	7.1	1.4	12.2
Wood Furnace	0.8	3.8	9.2	0.4	0.0	1.3
Heat Pump	5.7	8.4	5.5	2.4	0.1	3.2
High Efficiency (Gas/Oil)	24.0	19.9	15.0	19.7	2.4	18.8
Natural Gas Availability	73.1	39.0	30.6	90.6	59.8	77.7

APPLIANCE SATURATION BY HOUSING TYPE

WESTERN REGION

	Single Family Dwelling	Apartment	TOTAL
Number of Households Represented, Nov. 1990	616,503	82,977	699,480
	%	%	%
Electric Range	87.9	98.3	89.2
Gas Range	14.4	1.9	12.9
Microwave Oven	80.8	61.9	78.6
Frost-Free Refrigerator	91.4	63.3	88.0
Freezer (Stand Alone)	73.1	33.7	68.4
Other Refrigerator	36.0	40.4	36.5
Dishwasher	50.8	18.6	47.0
Clothes Washer	94.1	18.2	85.1
Electric Clothes Dryer	79.6	15.7	72.0
Gas Clothes Dryer	10.7	1.2	9.6
Colour Television	99.1	97.5	98.9
Black & White T.V.	19.0	10.0	17.9
VCR	66.3	47.3	64.0
Stereo/Hifi System	66.6	54.6	65.2
Personal Computer	21.3	8.5	19.8
Sentinel Lights	10.5	1.9	9.5
Electronic Air Cleaner	18.8	3.1	17.0
Window Air Conditioner	23.6	44.8	26.1
Central Air Conditioner	41.5	6.3	37.3
Furnace Humidifier	35.7	0.6	31.5
Electric Water Heater	34.1	26.3	33.2
Gas Water Heater	55.5	39.1	53.5
Switched Water Heater			
Fuel Electric to Gas	5.1	0.4	4.5
Electric Space Heating	13.9	42.7	17.3
Gas Space Heating	68.4	37.5	64.7
Oil Space Heating	13.6	2.0	12.2
Wood Furnace	1.5	0.0	1.3
Heat Pump	3.5	0.7	3.2
High Efficiency (Gas/Oil)	19.9	2.3	18.8
Natural Gas Availability	80.9	54.7	77.7

APPLIANCE SATURATION BY kWh CONSUMPTION

WESTERN REGION

Number of Households Represented, Nov. 1990	Less than 5,000 kWh	5,000 - 14,999 kWh	15,000 - 30,000 kWh	Over 30,000 kWh
	%	%	%	%
Electric Range	83.2	87.2	93.4	95.2
Gas Range	18.4	15.7	8.1	6.6
Microwave Oven	71.0	81.3	88.5	87.6
Frost-Free Refrigerator	84.3	92.4	95.3	94.7
Freezer (Stand Alone)	56.4	75.0	82.7	87.0
Other Refrigerator	33.7	34.8	40.7	40.2
Dishwasher	36.2	48.8	66.5	73.9
Clothes Washer	87.1	95.4	97.2	97.3
Electric Clothes Dryer	68.4	79.2	89.8	83.0
Gas Clothes Dryer	10.4	12.7	7.2	4.0
Colour Television	98.1	99.3	99.6	99.5
Black & White T.V.	17.1	18.6	21.6	20.7
VCR	55.6	66.1	76.7	73.6
Stereo/Hifi System	60.8	66.3	72.6	71.4
Personal Computer	15.9	19.2	30.2	34.2
Sentinel Lights	8.7	8.4	14.8	25.3
Electronic Air Cleaner	12.2	19.0	25.0	21.7
Window Air Conditioner	23.1	24.0	23.4	23.5
Central Air Conditioner	29.0	45.2	45.9	36.9
Furnace Humidifier	27.5	41.6	31.5	22.8
Electric Water Heater	28.9	23.7	57.7	78.5
Gas Water Heater	59.0	66.6	32.4	8.4
Switched Water Heater				
Fuel Electric to Gas	3.9	5.7	5.5	2.1
Electric Space Heating	12.5	3.5	33.5	56.6
Gas Space Heating	72.3	80.7	43.4	14.0
Oil Space Heating	9.6	12.5	18.3	24.0
Wood Furnace	0.9	0.9	2.8	4.9
Heat Pump	2.3	1.2	8.0	16.2
High Efficiency (Gas/Oil)	20.3	18.3	25.7	23.1
Natural Gas Availability	82.6	89.5	65.7	37.7

APPLIANCE SATURATION BY RATE CLASS

EASTERN REGION

	Rural Residential		Municipal			TOTAL
	High Density R1	Low Density R2	Farm	Single Metered	Bulk Metered	
Number of Households Represented, Nov. 1990	78,251	80,688	25,434	214,130	43,735	442,238
	%	%	%	%	%	%
Electric Range	96.6	95.1	91.9	97.7	97.9	96.7
Gas Range	3.3	4.7	7.6	2.6	1.6	3.3
Microwave Oven	84.1	79.0	77.4	73.8	48.4	74.3
Frost-Free Refrigerator	90.2	88.1	84.7	88.0	54.5	84.9
Freezer (Stand Alone)	76.8	80.0	84.9	60.2	26.9	64.9
Other Refrigerator	36.8	39.8	43.3	33.5	48.4	37.3
Dishwasher	58.6	49.3	47.4	56.2	21.7	51.5
Clothes Washer	94.9	94.2	93.8	86.6	15.6	82.8
Electric Clothes Dryer	90.9	87.1	85.8	80.6	14.1	77.3
Gas Clothes Dryer	1.3	1.6	0.9	1.7	1.0	1.5
Colour Television	99.1	98.6	97.5	99.0	96.0	98.5
Black & White T.V.	17.8	21.2	21.3	16.4	11.3	17.3
VCR	73.7	68.4	60.4	70.1	48.1	67.7
Stereo/Hifi System	70.2	66.4	54.3	72.7	59.6	68.7
Personal Computer	24.1	18.7	20.9	29.8	12.9	24.5
Sentinel Lights	11.9	16.3	23.7	9.4	2.4	11.3
Electronic Air Cleaner	11.9	8.4	5.7	16.7	3.7	12.4
Window Air Conditioner	18.7	17.2	16.9	19.2	32.7	20.0
Central Air Conditioner	26.9	14.4	8.8	35.6	12.9	26.4
Furnace Humidifier	21.2	10.5	14.4	32.3	0.0	22.1
Electric Water Heater	63.7	84.0	84.0	42.8	28.7	55.0
Gas Water Heater	24.4	1.6	1.1	38.5	50.0	28.3
Switched Water Heater						
Fuel Electric to Gas	2.9	0.4	0.2	6.7	0.8	3.9
Electric Space Heating	38.4	55.9	21.8	20.0	42.9	32.1
Gas Space Heating	29.0	2.7	1.9	48.5	47.2	33.9
Oil Space Heating	28.3	30.3	58.2	26.1	0.8	26.6
Wood Furnace	3.5	12.0	22.5	0.7	0.0	4.4
Heat Pump	6.4	7.1	3.2	5.0	0.8	5.1
High Efficiency (Gas/Oil)	16.4	10.1	12.2	14.5	2.0	13.3
Natural Gas Availability	45.1	11.4	12.1	76.3	61.3	53.7

APPLIANCE SATURATION BY RATE CLASS

EASTERN REGION

	Single Family Dwelling	Apartment	TOTAL
	%	%	%
Number of Households Represented, Nov. 1990	376,845	65,393	442,238
Electric Range	96.4	98.4	96.7
Gas Range	3.7	1.3	3.3
Microwave Oven	78.4	50.3	74.3
Frost-Free Refrigerator	89.4	58.9	84.9
Freezer (Stand Alone)	71.7	25.8	64.9
Other Refrigerator	35.9	45.4	37.3
Dishwasher	56.1	24.8	51.5
Clothes Washer	93.7	20.3	82.8
Electric Clothes Dryer	87.5	18.9	77.3
Gas Clothes Dryer	1.7	0.6	1.5
Colour Television	98.9	96.6	98.5
Black & White T.V.	18.5	10.1	17.3
VCR	70.9	49.4	67.7
Stereo/HIFI System	70.3	59.5	68.7
Personal Computer	26.5	13.1	24.5
Sentinel Lights	12.7	3.0	11.3
Electronic Air Cleaner	13.9	4.1	12.4
Window Air Conditioner	18.2	30.1	20.0
Central Air Conditioner	28.8	12.8	26.4
Furnace Humidifier	25.9	0.1	22.1
Electric Water Heater	58.9	32.4	55.0
Gas Water Heater	27.0	35.5	28.3
Switched Water Heater			
Fuel Electric to Gas	4.5	0.7	3.9
Electric Space Heating	30.4	42.1	32.1
Gas Space Heating	33.4	36.7	33.9
Oil Space Heating	30.4	4.8	26.6
Wood Furnace	5.2	0.0	4.4
Heat Pump	5.8	1.3	5.1
High Efficiency (Gas/Oil)	14.5	2.4	13.3
Natural Gas Availability	54.1	51.5	53.7

APPLIANCE SATURATION BY kWh CONSUMPTION

EASTERN REGION

Number of Households Represented, Nov. 1990	Less than 5,000 kWh	5,000 - 14,999 kWh	15,000 - 30,000 kWh	Over 30,000 kWh
	%	%	%	%
Electric Range	94.7	96.1	97.3	98.0
Gas Range	4.9	4.2	2.8	2.0
Microwave Oven	71.7	76.5	82.4	85.0
Frost-Free Refrigerator	81.6	89.0	92.3	94.1
Freezer (Stand Alone)	57.2	70.3	76.9	83.2
Other Refrigerator	34.2	33.5	38.8	39.9
Dishwasher	44.1	51.9	62.7	72.9
Clothes Washer	85.1	94.3	95.9	97.1
Electric Clothes Dryer	76.4	86.8	91.6	94.7
Gas Clothes Dryer	1.8	2.1	1.1	1.2
Colour Television	97.6	98.8	99.4	99.4
Black & White T.V.	16.4	18.5	19.1	19.9
VCR	64.7	69.2	74.0	78.4
Stereo/Hifi System	66.4	69.7	72.4	73.1
Personal Computer	21.0	25.0	28.9	33.5
Sentinel Lights	11.9	9.6	14.9	20.8
Electronic Air Cleaner	8.2	11.6	17.6	21.2
Window Air Conditioner	13.6	18.7	19.7	18.6
Central Air Conditioner	18.0	29.1	32.2	33.2
Furnace Humidifier	15.7	32.5	23.3	20.1
Electric Water Heater	48.9	44.4	76.3	86.3
Gas Water Heater	34.8	41.2	10.2	2.5
Switched Water Heater				
Fuel Electric to Gas	4.0	6.8	2.6	0.5
Electric Space Heating	31.4	8.9	45.4	79.5
Gas Space Heating	41.1	50.3	14.5	3.4
Oil Space Heating	18.9	34.8	35.3	13.5
Wood Furnace	4.5	4.7	6.4	5.0
Heat Pump	5.2	1.5	8.7	16.7
High Efficiency (Gas/Oil)	14.9	13.4	17.2	12.8
Natural Gas Availability	51.1	67.5	43.9	29.8

APPLIANCE SATURATION BY RATE CLASS

GEORGIAN BAY REGION

Rural Retail Residential

	High Density R1	Low Density R2	Farm	TOTAL
Number of Households Represented, Nov. 1990	83,730	67,895	27,121	178,755
	%	%	%	%
Electric Range	97.2	96.0	95.6	96.5
Gas Range	3.6	4.1	4.9	4.0
Microwave Oven	81.5	80.9	76.6	80.5
Frost-Free Refrigerator	90.8	89.0	87.0	89.5
Freezer (Stand Alone)	75.4	80.6	84.5	78.8
Other Refrigerator	34.8	38.6	41.9	37.3
Dishwasher	54.9	53.6	53.7	54.2
Clothes Washer	91.6	94.5	93.6	93.0
Electric Clothes Dryer	86.4	88.0	84.9	86.8
Gas Clothes Dryer	1.8	2.0	2.5	2.0
Colour Television	99.4	98.6	98.5	99.0
Black & White T.V.	14.8	17.1	19.4	16.4
VCR	72.1	72.1	59.8	70.2
Stereo/Hifi System	69.8	70.7	56.9	68.2
Personal Computer	18.4	20.7	19.5	19.4
Sentinel Lights	9.4	14.7	22.4	13.4
Electronic Air Cleaner	11.7	11.0	7.3	10.8
Window Air Conditioner	16.3	13.5	11.1	14.4
Central Air Conditioner	21.7	18.0	10.5	18.6
Furnace Humidifier	17.5	15.7	17.9	16.9
Electric Water Heater	72.5	84.8	81.2	78.5
Gas Water Heater	16.8	3.3	2.3	9.5
Switched Water Heater				
Fuel Electric to Gas	2.7	0.2	0.5	1.4
Electric Space Heating	52.3	52.0	21.5	47.5
Gas Space Heating	21.9	4.8	4.9	12.8
Oil Space Heating	20.8	35.3	59.4	32.2
Wood Furnace	2.3	8.2	16.2	6.7
Heat Pump	5.6	8.4	4.7	6.5
High Efficiency (Gas/Oil)	23.2	14.8	14.5	18.4
Natural Gas Availability	34.2	12.6	12.7	22.8

APPLIANCE SATURATION BY HOUSING TYPE

GEORGIAN BAY REGION

	Single Family Dwelling	Apartment	TOTAL
Number of Households Represented, Nov. 1990	177,348	1,406	178,755
	%	%	%
Electric Range	96.5	100.0	96.5
Gas Range	4.0	0.0	4.0
Microwave Oven	80.6	66.7	80.5
Frost-Free Refrigerator	89.6	83.6	89.5
Freezer (Stand Alone)	79.2	28.2	78.8
Other Refrigerator	37.4	28.4	37.3
Dishwasher	54.3	42.2	54.2
Clothes Washer	93.4	47.8	93.0
Electric Clothes Dryer	87.1	43.7	86.8
Gas Clothes Dryer	2.0	0.0	2.0
Colour Television	99.0	98.5	99.0
Black & White T.V.	16.5	7.2	16.4
VCR	70.4	47.1	70.2
Stereo/HiFi System	68.3	0.0	68.2
Personal Computer	19.6	0.0	19.4
Sentinel Lights	13.5	0.0	13.4
Electronic Air Cleaner	10.8	10.5	10.8
Window Air Conditioner	14.5	9.8	14.4
Central Air Conditioner	18.5	30.3	18.6
Furnace Humidifier	17.0	5.9	16.9
Electric Water Heater	78.6	61.7	78.5
Gas Water Heater	9.5	8.8	9.5
Switched Water Heater			
Fuel Electric to Gas	1.4	2.9	1.4
Electric Space Heating	47.5	52.0	47.5
Gas Space Heating	12.7	28.5	12.8
Oil Space Heating	32.4	1.5	32.2
Wood Furnace	6.7	0.0	6.7
Heat Pump	6.5	15.5	6.5
High Efficiency (Gas/Oil)	18.5	0.0	18.4
Natural Gas Availability	22.6	38.0	22.8

APPLIANCE SATURATION BY kWh CONSUMPTION

GEORGIAN BAY REGION

Number of Households Represented, Nov. 1990	Less than 5,000 kWh	5,000 - 14,999 kWh	15,000 - 30,000 kWh	Over 30,000 kWh
	%	%	%	%
Electric Range	95.3	94.9	97.8	98.1
Gas Range	5.0	5.6	2.6	3.0
Microwave Oven	81.6	75.4	82.1	86.4
Frost-Free Refrigerator	88.3	86.2	91.3	93.9
Freezer (Stand Alone)	71.6	78.3	81.3	85.6
Other Refrigerator	32.9	38.5	39.3	36.6
Dishwasher	51.2	41.0	58.7	74.0
Clothes Washer	90.1	92.0	94.8	96.9
Electric Clothes Dryer	84.5	81.2	90.6	94.3
Gas Clothes Dryer	1.8	3.5	1.4	0.8
Colour Television	98.1	98.8	99.2	99.9
Black & White T.V.	15.7	16.9	16.0	17.5
VCR	74.3	62.9	71.2	78.2
Stereo/HIFI System	71.1	62.8	68.6	74.7
Personal Computer	19.5	15.6	19.4	27.6
Sentinel Lights	10.0	11.0	14.3	20.7
Electronic Air Cleaner	12.7	7.1	10.0	17.3
Window Air Conditioner	11.3	15.3	15.1	15.5
Central Air Conditioner	22.4	15.1	16.9	23.7
Furnace Humidifier	18.7	19.9	13.3	17.3
Electric Water Heater	68.5	71.5	86.2	88.3
Gas Water Heater	19.1	15.2	2.8	1.2
Switched Water Heater				
Fuel Electric to Gas	2.1	2.0	1.0	0.4
Electric Space Heating	45.5	19.0	61.0	74.8
Gas Space Heating	23.6	19.8	4.9	2.5
Oil Space Heating	24.6	50.9	27.2	18.1
Wood Furnace	4.6	8.2	7.1	5.7
Heat Pump	7.8	1.8	6.6	13.4
High Efficiency (Gas/Oil)	28.4	15.0	16.4	20.8
Natural Gas Availability	32.9	29.3	15.3	13.2

APPLIANCE SATURATION BY RATE CLASS

NORTHEASTERN REGION

	Rural Retail Residential		Municipal			TOTAL
	High Density R1	Low Density R2	Farm	Single Metered	Bulk Metered	
Number of Households Represented, Nov. 1990	54,964	22,207	2,508	79,189	5,165	174,033
	%	%	%	%	%	%
Electric Range	98.5	94.7	96.0	97.2	98.9	97.4
Gas Range	1.5	5.5	3.2	3.1	1.1	2.8
Microwave Oven	81.1	79.4	73.0	78.1	65.9	78.9
Frost-Free Refrigerator	84.6	83.6	80.1	86.3	41.6	83.9
Freezer (Stand Alone)	69.2	81.2	83.1	68.5	43.8	69.9
Other Refrigerator	41.3	42.6	49.2	39.6	63.3	41.5
Dishwasher	46.7	40.7	42.3	47.8	7.6	45.2
Clothes Washer	90.6	91.5	94.0	87.5	4.3	86.8
Electric Clothes Dryer	86.6	85.0	84.5	79.5	2.2	80.6
Gas Clothes Dryer	1.0	1.5	1.1	2.0	0.0	1.5
Colour Television	99.4	98.1	98.0	99.5	100.0	99.3
Black & White T.V.	16.8	18.4	16.4	16.9	4.9	16.7
VCR	71.6	68.0	58.7	67.2	60.6	68.6
Stereo/Hifi System	61.6	63.2	51.3	62.9	55.7	62.1
Personal Computer	16.9	15.0	9.3	19.6	1.1	17.3
Sentinel Lights	6.9	13.0	20.5	8.4	1.1	8.4
Electronic Air Cleaner	7.5	4.9	3.4	8.4	3.8	7.4
Window Air Conditioner	10.6	8.0	6.6	12.1	11.4	10.9
Central Air Conditioner	3.7	2.6	2.8	6.0	2.2	4.5
Furnace Humidifier	15.8	9.9	12.6	18.6	0.0	15.8
Electric Water Heater	49.3	77.3	77.6	48.1	45.4	52.7
Gas Water Heater	37.3	4.9	2.6	35.8	31.9	31.8
Switched Water Heater						
Fuel Electric to Gas	9.4	2.8	1.0	7.2	0.0	7.1
Electric Space Heating	34.5	46.6	20.6	34.3	62.7	36.6
Gas Space Heating	48.3	5.6	3.3	47.8	27.0	41.3
Oil Space Heating	13.2	27.9	48.9	13.3	2.7	15.3
Wood Furnace	3.3	17.2	36.8	1.5	0.0	4.6
Heat Pump	0.3	0.9	0.6	0.7	2.2	0.6
High Efficiency (Gas/Oil)	26.5	13.5	9.2	23.4	0.0	23.3
Natural Gas Availability	75.8	14.9	8.5	77.0	53.5	66.9

APPLIANCE SATURATION BY RATE CLASS

NORTHEASTERN REGION

	Single Family Dwelling	Apartment	TOTAL
Number of Households Represented, Nov. 1990	180,733	13,300	174,033
	%	%	%
Electric Range	87.2	99.2	97.4
Gas Range	2.9	0.8	2.8
Microwave Oven	80.1	64.9	78.9
Frost-Free Refrigerator	86.3	55.1	83.9
Freezer (Stand Alone)	72.3	40.9	69.9
Other Refrigerator	40.7	51.1	41.5
Dishwasher	47.9	13.5	45.2
Clothes Washer	92.0	24.1	86.8
Electric Clothes Dryer	85.6	20.3	80.6
Gas Clothes Dryer	1.6	0.0	1.5
Colour Television	99.3	98.7	99.3
Black & White T.V.	17.4	8.1	16.7
VCR	69.9	54.0	68.6
Stereo/Hifi System	62.8	54.1	62.1
Personal Computer	18.1	5.9	17.3
Sentinel Lights	9.0	1.6	8.4
Electronic Air Cleaner	7.7	3.8	7.4
Window Air Conditioner	10.9	11.6	10.9
Central Air Conditioner	4.7	2.8	4.5
Furnace Humidifier	17.0	0.9	15.8
Electric Water Heater	53.8	39.4	52.7
Gas Water Heater	33.0	17.9	31.8
Switched Water Heater			
Fuel Electric to Gas	7.6	1.2	7.1
Electric Space Heating	35.2	53.9	36.6
Gas Space Heating	42.9	22.9	41.3
Oil Space Heating	16.5	1.6	15.3
Wood Furnace	5.0	0.2	4.6
Heat Pump	0.6	0.14	0.6
High Efficiency (Gas/Oil)	24.2	0.0	23.3
Natural Gas Availability	68.9	43.7	66.9

APPLIANCE SATURATION BY kWh CONSUMPTION

NORTHEASTERN REGION

Number of Households Represented, Nov. 1990	Less than 5,000 kWh	5,000 - 14,999 kWh	15,000 - 30,000 kWh	Over 30,000 kWh
	%	%	%	%
Electric Range	97.0	96.4	97.9	99.3
Gas Range	3.3	3.6	2.4	0.9
Microwave Oven	69.3	79.4	85.1	89.5
Frost-Free Refrigerator	78.4	86.1	89.8	92.2
Freezer (Stand Alone)	59.3	73.2	76.3	81.0
Other Refrigerator	36.5	43.1	38.7	42.4
Dishwasher	34.3	45.3	53.7	67.3
Clothes Washer	82.8	93.1	94.6	96.6
Electric Clothes Dryer	73.3	85.4	90.7	96.0
Gas Clothes Dryer	1.9	2.3	0.8	0.7
Colour Television	99.0	99.1	99.5	100.0
Black & White T.V.	14.5	18.0	17.6	19.4
VCR	61.7	67.5	74.1	83.2
Stereo/HiFi System	58.0	60.4	65.6	73.5
Personal Computer	12.5	17.0	21.9	23.5
Sentinel Lights	7.9	7.9	10.4	11.7
Electronic Air Cleaner	5.7	7.4	8.9	9.6
Window Air Conditioner	6.6	11.6	13.9	8.4
Central Air Conditioner	2.3	5.3	4.6	6.2
Furnace Humidifier	14.5	24.9	9.6	7.4
Electric Water Heater	45.5	36.9	75.5	84.8
Gas Water Heater	40.4	49.6	11.3	4.2
Switched Water Heater				
Fuel Electric to Gas	6.2	11.0	4.7	3.5
Electric Space Heating	25.8	8.6	64.4	89.1
Gas Space Heating	52.0	63.5	16.6	5.4
Oil Space Heating	14.9	22.3	13.3	3.3
Wood Furnace	4.7	4.5	7.0	3.1
Heat Pump	0.5	0.3	0.6	1.9
High Efficiency (Gas/Oil)	18.8	25.3	26.7	26.6
Natural Gas Availability	69.7	79.6	56.5	53.0

APPLIANCE SATURATION BY RATE CLASS

NORTHWESTERN REGION

	Rural Retail Residential			Municipal		
	High Density R1	Low Density R2	Farm	Single Metered	Bulk Metered	TOTAL
Number of Households Represented, Nov. 1990	12,110	12,136	802	48,576	2,007	75,630
	%	%	%	%	%	%
Electric Range	94.9	91.7	91.9	96.4	100.0	96.8
Gas Range	5.4	8.8	6.1	1.7	0.0	3.4
Microwave Oven	80.6	80.2	76.1	78.7	64.7	78.8
Frost-Free Refrigerator	85.8	85.3	81.4	87.2	52.9	85.7
Freezer (Stand Alone)	74.2	78.3	83.9	69.1	50.0	71.1
Other Refrigerator	35.1	35.0	35.0	37.8	84.7	37.6
Dishwasher	45.6	42.6	36.1	45.4	11.8	44.0
Clothes Washer	92.5	88.6	93.5	90.4	26.5	88.8
Electric Clothes Dryer	84.2	80.5	79.5	82.0	17.6	80.4
Gas Clothes Dryer	2.2	2.1	4.1	2.1	8.8	2.3
Colour Television	99.3	98.0	98.9	98.5	97.1	98.5
Black & White T.V.	11.7	14.3	11.8	17.2	2.9	15.4
VCR	76.1	66.6	50.6	70.3	58.8	70.1
Stereo/Hifi System	63.2	63.8	49.3	60.7	44.1	61.1
Personal Computer	18.3	19.4	12.7	14.7	14.7	16.0
Sentinel Lights	8.0	15.4	24.3	9.6	5.9	10.3
Electronic Air Cleaner	6.1	5.7	3.6	12.4	8.8	10.1
Window Air Conditioner	8.2	11.3	6.5	6.2	2.9	7.3
Central Air Conditioner	4.5	4.1	4.1	8.7	2.9	7.1
Furnace Humidifier	10.7	6.9	8.7	24.7	2.9	18.8
Electric Water Heater	66.9	83.4	85.8	29.0	23.5	44.3
Gas Water Heater	18.1	1.0	1.9	57.6	35.3	41.0
Switched Water Heater						
Fuel Electric to Gas	4.6	0.7	0.9	10.7	0.0	7.7
Electric Space Heating	41.7	46.3	22.2	14.2	64.7	25.2
Gas Space Heating	27.9	2.3	3.0	73.7	23.5	52.9
Oil Space Heating	21.5	30.3	41.8	7.4	0.0	13.5
Wood Furnace	9.3	27.3	35.3	3.2	0.0	8.3
Heat Pump	0.4	1.4	0.9	0.2	0.0	0.4
High Efficiency (Gas/Oil)	19.5	8.1	7.2	20.8	0.0	19.4
Natural Gas Availability	40.6	14.1	11.3	82.5	50.0	63.2

APPLIANCE SATURATION BY HOUSING TYPE

NORTHWESTERN REGION

	Single Family Dwelling	Apartment	TOTAL
Number of Households Represented, Nov. 1990	70,326	5,304	75,630
	%	%	%
Electric Range	96.6	98.3	96.8
Gas Range	3.5	2.2	3.4
Microwave Oven	80.6	55.5	78.8
Frost-Free Refrigerator	87.9	56.7	85.7
Freezer (Stand Alone)	73.6	37.7	71.1
Other Refrigerator	36.5	51.8	37.6
Dishwasher	46.6	9.1	44.0
Clothes Washer	93.3	29.3	88.8
Electric Clothes Dryer	84.7	22.5	80.4
Gas Clothes Dryer	2.2	3.3	2.3
Colour Television	98.6	96.8	98.5
Black & White T.V.	16.0	8.4	15.4
VCR	71.0	58.6	70.1
Stereo/HiFi System	62.4	43.1	61.1
Personal Computer	16.8	6.2	16.0
Sentinel Lights	11.0	2.2	10.3
Electronic Air Cleaner	10.5	5.1	10.1
Window Air Conditioner	7.7	2.3	7.3
Central Air Conditioner	7.5	1.1	7.1
Furnace Humidifier	20.2	0.0	18.8
Electric Water Heater	45.0	34.5	44.3
Gas Water Heater	42.3	23.9	41.0
Switched Water Heater Fuel Electric to Gas	8.2	1.7	7.7
Electric Space Heating	22.3	62.7	25.2
Gas Space Heating	55.1	23.3	52.9
Oil Space Heating	14.5	0.5	13.5
Wood Furnace	8.9	0.0	8.3
Heat Pump	0.4	0.0	0.4
High Efficiency (Gas/Oil)	19.8	0.0	19.4
Natural Gas Availability	64.5	45.5	63.2

APPLIANCE SATURATION BY kWh CONSUMPTION

NORTHWESTERN REGION

Number of Households Represented, Nov. 1990	Less than 5,000 kWh	5,000 - 14,999 kWh	15,000 - 30,000 kWh	Over 30,000 kWh
	%	%	%	%
Electric Range	96.0	96.2	96.3	97.9
Gas Range	4.0	4.0	1.9	3.0
Microwave Oven	71.1	81.9	87.0	82.9
Frost-Free Refrigerator	84.9	87.8	90.9	90.8
Freezer (Stand Alone)	58.4	78.0	76.0	82.5
Other Refrigerator	31.7	38.7	34.1	42.5
Dishwasher	31.6	46.0	59.3	68.2
Clothes Washer	86.8	95.6	93.1	96.9
Electric Clothes Dryer	75.5	86.3	88.2	94.3
Gas Clothes Dryer	2.9	1.9	2.8	0.1
Colour Television	97.2	99.1	98.4	100.0
Black & White T.V.	13.2	15.8	18.6	19.1
VCR	62.4	71.3	77.8	78.4
Stereo/Hifi System	53.1	62.7	67.6	78.4
Personal Computer	12.8	13.9	23.2	37.9
Sentinel Lights	7.1	10.7	14.1	18.1
Electronic Air Cleaner	7.0	10.8	12.0	17.2
Window Air Conditioner	8.3	6.9	8.8	8.6
Central Air Conditioner	3.8	8.4	9.1	8.8
Furnace Humidifier	17.5	25.5	11.4	11.4
Electric Water Heater	36.9	34.5	72.2	84.1
Gas Water Heater	51.4	51.8	17.0	2.4
Switched Water Heater				
Fuel Electric to Gas	8.0	9.6	6.0	2.4
Electric Space Heating	17.7	8.0	49.7	84.8
Gas Space Heating	64.5	67.8	23.8	3.4
Oil Space Heating	10.4	16.1	16.4	8.1
Wood Furnace	4.5	7.5	17.4	10.5
Heat Pump	0.3	0.4	0.4	1.8
High Efficiency (Gas/Oil)	18.3	19.3	25.3	30.3
Natural Gas Availability	75.1	75.6	34.0	21.4



